Gaining perspective:

Evaluating links between mindfulness, temporal perspective, and subjective trajectories for life satisfaction

by

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Abstract

Mindfulness is defined as the present-focused awareness of one's moment-to-moment experiences. Studies have found links between greater mindfulness and more positive outcomes. Such links have been interpreted as indicating that greater emphasis on the present is beneficial. However, despite the conceptual link between mindfulness and the present, mindfulness has yet to be investigated in relation to temporal perspective. Temporal perspective encompasses cognitive involvement across the subjective past, present, and anticipated future, and comprises multiple components, including temporal focus, distance, overlap, and value. Similarly, mindfulness has not been examined in relation to well-being utilizing a temporally-expanded approach – for example, based on how individuals view their life satisfaction (LS) to be unfolding over time. The aim of this Master's thesis was to evaluate the relations between: mindfulness and LS, including beliefs about how one's LS is unfolding over time (Goal 1); mindfulness and temporal perspective (Goal 2); temporal perspective and LS (Goal 3); and temporal perspective as a mediator of the relations between mindfulness and LS (Goal 4). A community sample of younger adults (N = 305, 55% female) completed an on-line questionnaire containing measures of trait mindfulness, temporal perspective (focus, distance, overlap, and value of the past, present, and future), and LS (recollected past, present, and anticipated future). Regarding Goal 1, mindfulness was associated with higher past, present, and anticipated future LS, but unrelated to how individuals view their LS as unfolding over time. Regarding Goal 2, mindfulness was linked with temporal perspective concerning the present (temporal focus, value), but *also* the past (temporal focus, distance, value), and the future (temporal focus, value). Regarding Goal 3, various

aspects of temporal perspective were linked with LS, including current temporal focus, past-current temporal overlap, and current temporal value. Regarding Goal 4, temporal focus and value mediated the predictive effect of mindfulness on current LS. Together, these results suggest that mindfulness can be understood from a temporally-expanded perspective, encompassing not only how we view our present lives, but also how we view our past and anticipated future lives. Implications for existing conceptualizations of mindfulness, temporal perspective, and LS are discussed.

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General Introduction

Mindfulness, defined as a present-moment awareness (Kabat-Zinn, 1994), is associated with a wide range of positive outcomes including greater positive affect, lower stress (Gu, Strauss, Bond, & Cavanagh, 2015), less rumination (Campbell, Labelle, Bacon, Feris, & Carlson, 2012), and more effective emotional regulation (Coffrey & Hartmen, 2008). My interest was in examining mindfulness from a temporal perspective that is, in terms of how individuals think about and evaluate their past, current, and anticipated future lives (Shipp, Edwards, & Lambert, 2009). Interestingly, despite being defined as a present-focused construct, the association between mindfulness and temporal perspective has not been well-examined. Temporal perspective has been studied in terms of various components, including temporal focus, temporal distance, temporal overlap, and temporal valuation. Moreover, past research has shown that many individuals believe their life gets better and better with time (Ross & Newby-Clark, 1998). For example, individuals typically rate their past life satisfaction (LS) as lower than their current LS, and their future LS as being greater than their current LS – creating an inclining subjective trajectory for LS (Busseri, Choma, & Sadava, 2009a). The primary goal of this thesis was to investigate how individual differences in mindfulness relate to LS (including subjective trajectories of LS), and whether temporal perspective (i.e., temporal focus, distance, overlap, valuation) mediated this anticipated link between mindfulness and LS.

Mindfulness

Within the literature, there has been a lack of consensus as to what comprises mindfulness and how to specifically define it. However, mindfulness is often described as

a present-focused awareness of one's moment-to-moment experiences (Kabat-Zinn, 1994). One prominent interpretation of mindfulness suggests that it is a particular form of consciousness, comprising both awareness of and attention to the present moment (Brown & Ryan, 2003). Other interpretations suggest additional components of mindfulness, including acceptance and non-judgment of one's reactions to (i.e., thoughts and feelings about) the present moment (Feldmen, Hayes, Kumar, Greeson, & Laurenceau, 2007), and the ability to describe one's momentary experiences and associated reactions (Baer et al., 2008).

Accompanying these various definitions, several self-report measures have been developed in order to assess mindfulness (Baer et al., 2004, 2008; Lau et al., 2006). Mindfulness has been studied both as a dispositional trait and as a state. From the trait perspective, individuals differ with respect to their general ability or tendency to be mindful (Brown, Ryan, & Creswell, 2007). According to the state perspective, mindfulness can be induced situationally (Erisman & Roemer, 2010) or taught over an extended period of time using various meditational practices (Creswell et al., 2012).

Mindfulness has become a much researched topic by psychologists because it has been found to be associated with a host of benefits. Indeed, with respect to individual differences, greater mindfulness has been linked with lower stress levels (Prakash, Hussain & Schirda, 2015), less anxiety (Lyvers, Makin, Toms, Thorberg & Somlos, 2014), improved attention and memory (Cheisa, Calati, & Serretti, 2011), and higher levels of self-esteem (Rasmussen & Pidgeon, 2011). Although most of these studies have employed cross-sectional correlational designs, some research has demonstrated that higher mindfulness predicts more positive mental health across time using longitudinal

designs (e.g., Call, Pitcock & Pyne, 2015; Williams, Ciarrochi & Patrick Deane, 2010). Further, in experimental contexts, greater induced mindfulness has been shown to lead to decreased attachment anxiety (Hertz, Laurent & Laurent, 2015), and increased physical activity (Roberts & Danoff-Burg, 2010). Mindfulness is thought to be connected to these various outcomes through several mechanisms, including rumination, emotional regulation, and stress (Coffrey & Hartman, 2008; Gu et al., 2015). That is, greater mindfulness is thought to lead to less rumination and worry, more effective emotional regulation, and less stress, which then promotes more positive functioning (e.g., higher levels of cognitive control, Prakash et al., 2015; and less aggression, Shorey, Brasfield, Anderson, & Stuart, 2015).

In addition to links with these various specific outcomes, mindfulness has also been linked with broad indicators of well-being. Subjective well-being (SWB) has been defined as containing three components: LS, positive affect, and negative affect (Diener, 1984). The latter two components tap affective reactions or experiences, whereas LS focuses on a cognitive judgment with respect to one's global assessment of one's life (Diener, 1984). The combination or co-occurrence of high LS, frequent positive affect, and less frequent negative affect is referred to as high SWB (Busseri & Sadava, 2011). Importantly, higher SWB has been linked with a wide range of positive life outcomes, such as higher self-rated fitness and lower depression levels (Busseri et al., 2009a). Accordingly, SWB has been used as a gauge of positive functioning, both within individuals and at the societal-level (Diener, 2008; Diener & Seligman, 2004). Research suggests that mindfulness may be one factor that promotes high SWB, as studies have found positive associations between trait mindfulness and LS (Brown & Ryan, 2003) and

positive affect (Bajaj & Pande, 2016), as well as negative associations with negative affect (Sears & Kraus, 2009).

Subjective Trajectories for Well-Being

LS is perhaps the most widely-used indicator of SWB (Busseri & Sadava, 2011). Most research has studied LS (and SWB more generally) with respect to one's life at present or overall (Diener, 2008). However, people's beliefs about their LS also extend beyond just the present, and encompasses their subjective past, present, and anticipated future (Diener, Suh, Lucas, & Smith, 1999). With exception of older adults, many individuals rate their past worse than their present, and anticipate their future will be better than their present, creating an upward subjective trajectory (ST) for LS (Busseri et al., 2009a). Such findings are consistent with the normative belief that life gets better and better over time (Newby-Clark & Ross, 1998).

This normative belief is consistent with lifespan developmental theories, according to which key processes and goals during young adulthood include growth and achievement, as well as accumulation of resources (Baltes, 1987; Heckhausen, Dixon, & Baltes, 1989). Further, this belief may also reflect personal theories of self-enhancement and self-improvement, which are thought to be adaptive when faced with threat or when seeking to maintain a positive self-view (Ross, 1989; Shmotkin, 2005; Taylor, Neter, & Wayment, 1995). Beyond these broad mechanisms concerning lifespan development and self-evaluation motives, the specific source(s) of young adults' beliefs concerning how their LS is unfolding over time is not well understood.

Some emerging research suggests that these STs may arise, in part, due to beliefs concerning how a typical life should unfold over time with respect to key life events and

transitions, as well as perceptions concerning how one's future life ideally would be or ought to be. Specifically, based on cultural life script theory (Rubin & Berntsen, 2003), Shanahan and Busseri (2016) found that steeply inclining STs among young adults resulted from a personal life story characterized by an increasing number of increasingly positive life script events (e.g., getting married, first job). In contrast, an (atypical) flat ST resulted from a personal life story characterized by a decreasing number of decreasingly positive life events. Further, based on self-discrepancy theory (Higgins, 1989), Busseri and Merrick (2016) found that steeply inclining STs were typical of young adult participants describing their "ideal" future lives (i.e., the lives they want to have) or 'ought' future lives (i.e., the lives they belief they are obligated or expected to have). Together, these recent findings suggest that individuals may view their life as getting better and better because they expect an increasingly positive series of life events over time and perhaps because they anticipate themselves growing closer and closer to their ideal or ought future lives (Busseri & Merrick, 2016; Shanahan & Busseri, 2016).

Despite the overall tendency for younger adults to view their lives as getting better and better over time, individuals differ with respect to the slope and shape of their ST, and such differences have been linked with various outcomes. Surprisingly, although the belief that life gets better and better may appear to be a positive sign, studies suggest that in fact more steeply inclining STs are related to (and predictive of) lower self-esteem, greater depression, worse physical functioning, and smaller social support networks (Busseri & Peck, 2014; Busseri et al., 2009a, 2009b; 2012; Choma, Busseri & Sadava, 2014). But more specifically, this previous research suggests that individuals who are thriving in their lives tend to evaluate their past LS as worse than their present

(i.e., report an inclining ST from past to present), but anticipate only a slight increase in their LS from the present into the future (i.e., report a relatively stable ST from present to future). In contrast, individuals who are struggling in their current lives tend to evaluate their past as more similar to the present but nonetheless anticipate a brighter personal future.

This latter finding is consistent with proposals that individuals who are currently struggling may set high expectations of the future that turn out to be unrealistic, to distract themselves from their current distress (Robins & Beer, 2001). Individuals who are struggling in their current life may also view greater LS in their future as an unattainable obligation creating a feeling of helplessness, and lack of control not experienced by thriving individuals (Abramson, Metalsky, & Alloy, 1989). It is also possible that young adults have not yet accepted who they are and the life that they are living, and as such anticipate an unrealistic increase in LS in the future. This lack of self-acceptance displayed through LS ratings may lead individuals to less positive outcomes in the future (Lachman, Röcke, Rosnick, & Ryff, 2008). At present, however, the specific mediating mechanisms linking individuals' ST with various outcomes have yet to be clarified.

Further, although a brighter anticipated future among individuals who are struggling may be surprising, such individuals do rate their lives as *less* satisfying than the norm at all three temporal periods (past, present, future). Indeed, past studies have shown that while depressed and nondepressed individuals both show an upward slope between their past and anticipated future LS, depressed individuals report lower than average ratings of past, present, and anticipated future LS; nondepressed individuals

report higher than average ratings at all three temporal periods (Busseri & Peck, 2014). Similar patterns have been found with respect to differences between dispositionally optimistic versus pessimistic individuals (Busseri, 2012; Busseri et al., 2009b). Such findings suggest that it is important to consider the overall level of LS along with the shape and slope of the STs from past to present, and present to future LS. To inform such considerations, more information is needed concerning which constructs are associated with the varying ST trends and how they are associated. As described next, the present work focuses on mindfulness as one such potential construct.

Mindfulness and Subjective Trajectories

Mindfulness and STs (particularly more steeply inclining past-present slopes, and less steeply inclining present-future slopes) have each been associated with positive outcomes, including several of the same outcomes, such as: lower levels of depression (Busseri et al., 2009a; Deng, Li & Tang, 2014), higher levels of self-esteem (Busseri et al., 2011; Rasmussen & Pidgeon, 2011) and higher physical, mental, and interpersonal functioning (Brown et al., 2007; Busseri et al., 2009a). As both mindfulness and STs are connected to similar outcomes, it is reasonable to suggest that the two may be related to each other. Furthermore, beyond their connections to similar outcomes, both mindfulness and STs share a focus on temporal perspective, that is, both concepts are related to an individual's cognitive involvement across temporal periods (Busseri et al., 2012; Kabat-Zinn, 1994).

Given these parallels, in the present work I investigated the relation between mindfulness, LS and how individuals view their lives as unfolding over time. In particular, with STs being possible indicators of quality of life (Shmotkin, 2005), it is of

value to investigate the link between mindfulness and individuals' STs. Although previous research has emphasized the positive outcomes of mindfulness, no previous studies have investigated how mindfulness relates to an individual's view of her life unfolding over time. Consistent with the information summarized above, I would expect that greater trait mindfulness will be associated with greater LS at each temporal period, but particularly current LS given the emphasis on the present moment in the conceptualization of mindfulness. Further, I expect that greater trait mindfulness will be associated with a more steeply inclining past-current ST slope as well as a more gradually inclining current-future ST slope since this particular combined ST pattern is associated with similar outcomes as higher trait mindfulness. Note, however, that as prior research has shown that many young adults view their life as getting better and better over time, I anticipate that most individuals will report an inclining ST slope overall, that is, from recollected past to anticipated future LS, regardless of their level of trait mindfulness. Further, I expect that this overall past-future ST slope may not be related to mindfulness, given that the past-future ST slope does not take into account present LS.

In addition to how individuals view their LS as unfolding over time, the construct of mindfulness is associated more generally with temporal perspective, as the definition focuses primarily on the present, moment-to-moment experiences (Kabat-Zinn, 1994). Further, in some definitions mindfulness is thought to involve acceptance of the past and the avoidance of relating the past to current experiences; that is, mindful individuals are thought to approach new experiences without undue influence of their past experiences (Baer et al., 2004). Given these temporal features of mindfulness, it would be important to better understand how mindfulness relates to temporal perspective, as discussed next.

Temporal Perspective

Temporal perspective refers to an individual's overall span of cognitive involvement across the subjective past, present, and future (Lasane & O'Donnell, 2005). Temporal perspective encompasses several different constructs, each associated with varying outcomes. As discussed next, of particular interest to the current research are the temporal perspective constructs of: temporal focus, temporal distance, temporal overlap, and temporal value.

Temporal focus. Temporal focus has been described as the extent to which people devote their attention to perceptions or thoughts of the past, present, and future (Bluedorn, 2002). Individuals vary with respect to how much they focus on each temporal period (i.e., degree of focus on the past, present, and future). Accordingly, individuals may focus more or less on a given temporal period (e.g., past, current, future), or some may not focus on certain periods at all (Shipp et al., 2009). Temporal focus has been associated with various outcomes, including affect (Shipp et al., 2009) and goal-setting (Lasane & Jones, 1999). In particular, individuals who have a greater focus on the past have higher negative affect than individuals who have less focus on the past, whereas individuals who have a greater focus on the current or future temporal periods have higher positive affect than individuals who have less focus on the current or future temporal period (Shipp et al., 2009). Further, goal-setting appears to be more effective among individuals with greater focus on the future than among individuals with less focus on the future (Lasane & Jones, 1999).

For present purposes, temporal focus is of particular interest as mindfulness has been defined in terms of individuals focusing on their present experiences (Baer et al.,

2008; Kabat-Zinn, 1994). Further, a recent study has shown that exposure to a mindfulness induction leads individuals to have less focus on the past and/or future, which predicts lower negative affect (Hafenbrack, Kinias, & Barsade, 2014). Consistent with these notions, I expect that greater trait mindfulness will be linked with greater focus on the present, as well as less focus on the past and future. Moreover, although temporal focus has not been directly studied with regards to an individual's ST, it has been linked to LS, such that individuals with a greater present focus rate their current LS higher than individuals who have less focus on the present, whereas individual differences in past and future focus were not related to evaluations of current LS (Busseri et al., 2012). Based on these findings, I expect that temporal focus will be linked with STs, particularly that greater present focus will be linked with more steeply inclining STs between the past and present, and less steeply inclining STs between the present and anticipated future. (Note that if the overall ST trend is inclining for younger adults, and temporal focus is only linked with current LS, then greater present temporal focus will result in higher current LS, which will create a more steeply inclining past-current ST and a less steeply inclining current-future ST). In contrast, no predictions were made as to how temporal focus will be associated with the overall (i.e., past-future) ST slope.

Furthermore, I expect that temporal focus will mediate the anticipated link between mindfulness, current LS and STs. Specifically, I expect that greater mindfulness will predict greater temporal focus on the present, and it is this heightened temporal focus on the present that will lead to higher current LS, a more steeply inclining slope from the recollected past to the present, and a more gradually inclining slope from the present to the anticipated future. Independent of temporal focus, therefore, I expect that mindfulness

will be less strongly related to (or no longer significantly related to) current LS or STs. My rationale for this mediation prediction is as follows: Individuals higher in mindfulness will focus more on the present moment, as is the definition of mindfulness. This heightened focus on the present will lead such individuals to become more aware of what is satisfying in their present life, and allow them to continue pursuing actions that support their current LS, while also becoming more aware of potential threats to their satisfaction and avoid actions that may detract from their current LS. Through such processes, individuals who focus more on the present will view their current life as more satisfying than individuals who focus less on the present, thus, rating their current LS higher. Further, with regards to STs, this heightened satisfaction with one's life at present will also result in individuals who focus more on the present reporting a greater difference between their past and current LS, seen as a more steeply inclining ST, as well as a smaller difference between their present and anticipated future LS, creating a more gradually inclining ST. As such, it is an individual's degree of focus on the present temporal period that will impact their current LS, and STs and will at least partially account for the anticipated association between mindfulness, LS and individuals' STs.

Temporal distance. Temporal distance refers to how near or far the past and future are compared to the present (Bluedorn, 2002). It can be evaluated subjectively, that is, as an individual's perception of how far or close the past and future *feel* from the present (Ross & Wilson, 2002). It can also be evaluated objectively, such that it is the actual difference in time (e.g., years, weeks, days) between the present and the past or future (Shipp et al., 2009). Whereas to assess subjective distance participants can be asked how near or far the past or future feels to them, to assess objective distance

participants can report when the past or future they were thinking of occurred (e.g., how many days or months in the past or the future).

These two forms of temporal distance are related, but may also be distinct, as evidenced by studies in which individuals vary on ratings of subjective temporal distance while objective temporal distance is kept constant (e.g., Wilson & Ross, 2001). Temporal distance has been associated with differences in regulatory focus (Pennington & Roese, 2003), changes in confidence levels (Savitsky, Medvec, Charlton & Gilovich, 1998), and willingness to forgive (Wohl & McGrath, 2007). In particular, the greater the subjective temporal distance between an individual and an event, the more promotion focused rather than prevention focused the individual will be (Pennington & Roese, 2003), and the more confidence the individual will have (Savitsky et al., 1998). Further, the greater the subjective temporal distance between a transgression and the present, the more likely an individual is to forgive the said transgression (Wohl & McGrath, 2007).

Neither mindfulness nor temporal distance have been researched in relation to individuals' STs and, as such, including these measures within the current research aid in filling a gap within the literature. As mindfulness is defined in terms of awareness of moment-to-moment experiences, such awareness could impact the perceived length of the present, thus affecting the perceived distance from the present to the past and future. However, there are competing possibilities as to how mindfulness may be linked with temporal distance. In particular, it is possible that more mindful individuals may perceive smaller temporal distances (subjective and objective) from the present to the past and future, as such individuals may experience the present moment as fleeting and brief, which would lead them to perceive both the past and future as less far away. On the other

hand, it is also plausible that more mindful individuals may perceive greater temporal distances (subjective and objective) from the present to the past and the future as such individuals may experience the present moment as long-lasting, which would lead them to perceive both the past and future as farther away.

Because STs pertain to one's view of their LS from the past, to the present, and into the anticipated future, how an individual evaluates the temporal distance between those temporal periods could influence one's evaluation of their past, present, and anticipated future LS. Although no previous research has examined this issue, individuals perceiving less distance to the past and future may evaluate their LS as remaining relatively stable between temporal periods (past-present, present-future,); in contrast, individuals perceiving greater distance to the past and future may evaluate their lives as improving more between temporal periods. Consequently, I speculate that the smaller the temporal distance (subjective or objective) to the past or future, the less steeply inclining the ST between temporal periods (past-present, present-future), whereas the greater the temporal distance to the past or future, the more steeply inclining the ST between the temporal periods (past-present, present-future).

Furthermore, I expect that temporal distance will mediate the relation between mindfulness and STs, such that it is mindfulness' link with temporal distance that will impact an individual's ST. Specifically, one possibility is that greater mindfulness will predict greater temporal distance (subjective and objective) to the past and future, and it is this increased temporal distance that will lead to a more steeply inclining slope from the recollected past to the present, and a more steeply inclining slope from the present to the anticipated future. My rationale for this mediation prediction is as follows:

Individuals higher in mindfulness view their present as long-lasting – and thus, the past and future as further away in time. As a result of this lengthened perceived time difference between temporal periods, when they look to their past or future these individuals will perceive greater opportunities for changes they were or will be able to make in order to improve their lives over more extended periods of time. This will result in the perception that their past and future LS are substantially different from their current LS and create more steeply inclining ST slopes from past to current LS, and current to future LS.

Another possibility is that greater mindfulness will predict less temporal distance to the past and future, and it is this decreased temporal distance that will lead to a more gradually inclining slope from the recollected past to the present, and a more gradually inclining slope from the present to the anticipated future. My rationale for this mediation prediction is as follows: Individuals higher in mindfulness will view their present life as fleeting and brief – and thus the past and future as closer in time. As a result of this limited perceived time difference between temporal periods, when they look to their past or future, these individuals will only perceive slight changes they were or will be able to make in order to improve their lives in such a short period of time. This will result in the perception that their past and future LS are only slightly different from their current LS and creating more gradually inclining ST slopes from past to current LS, and current to future LS. Regardless of which of these two possibilities is supported, independent of temporal distance, mindfulness will be less strongly related to STs, such that temporal distance will at least partially account for the anticipated association between mindfulness and individual's STs.

Temporal overlap. Temporal overlap has been studied in terms of the degree to which individuals perceive the different temporal periods being related to one another and/or coinciding with each other (Cottle, 1967). For example, some individuals perceive the past to be disconnected from (and not overlapping with) their current lives, whereas others may perceive a strong connection (and overlap) among all three temporal periods (Mello & Worrell, 2007). Greater temporal overlap has been associated with greater self-actualization and evaluating the present more positively (Getsinger, 1975). Additionally, temporal overlap has been associated with ethical judgements, such that the more individuals believe their future is related to their present, the less likely they are to make false promises, lie, or cheat (Hershfeld, Cohen & Thompson, 2012). As well, temporal overlap has been associated with procrastination, such that the more individuals believe their future is related to their present, the less likely they are to procrastinate (Blouin-Hudon & Pychyl, 2015)

There has also been no empirical research on the relations of temporal overlap with mindfulness and STs. As mindfulness is defined in terms of awareness of moment-to-moment experiences, such awareness could impact the perceived similarity and continuity between the past and future with the present. However, there are competing possibilities as to how mindfulness may be linked with temporal overlap. It is plausible that more mindful individuals view their past and future to be more similar to their present and as a result perceive greater overlap between the present and the past and future. Conversely, it is also plausible that more mindful individuals view their past and future to be less similar to their present and as a result perceive less overlap between the present and the past and future.

Furthermore, when an individual is rating her ST, she must recollect what their past life was like and speculate on what their future will be like. If an individual believes his or her past or future life was/will be very distinct from life at present (i.e., less overlap between temporal periods), that individual may rate her past or future LS as less similar to her current LS, than if she believes there is greater overlap between her current and past or future lives. Consequently, I speculate that the greater the temporal overlap to the past or future, the less steeply inclining the ST between temporal periods (past-present, present-future), whereas the smaller the temporal overlap with the past or future, the more steeply inclining the ST between the temporal periods (past-present, present-future).

Furthermore, I expect that temporal overlap will mediate the relation between mindfulness and STs, such that it is mindfulness' link with temporal overlap that will impact an individual's ST. Specifically, one possibility is that greater mindfulness will predict greater temporal overlap between the past and future with the present, and it is this increased temporal overlap that will lead to a less steeply inclining slope from the recollected past to the present, and a less steeply inclining slope from the present to the anticipated future. My rationale for this prediction is as follows: Individuals higher in mindfulness have an increased awareness of the present moment, and thus may become more aware of the aspects of their current life that are similar to their recollected past and imagined anticipated future. As a result of this increased awareness of similarities between temporal periods, when individuals higher in mindfulness look to their past or future they will perceive greater overlap between their recalled past life to their current life, and from their current life to their anticipated future life. This greater perceived temporal overlap will result in the perception of greater continuity between their past and

current lives and between their current and future lives, creating a less steeply inclining ST slope from past to current LS, and a less steeply inclining ST slope from current to future LS.

Another possibility is that greater mindfulness will predict less temporal overlap between the past and future with the present, and it is this decreased temporal overlap that will lead to a more steeply inclining slope from the recollected past to the present, and a more steeply inclining slope from the present to the anticipated future. My rationale for this mediation prediction is as follows: Individuals higher in mindfulness have an increased awareness of the present moment—and thus may become more aware of the aspects of their current life that are dissimilar from their recalled past and their anticipated future. As a result of this increased awareness of dissimilarities between temporal periods, when individuals higher in mindfulness look to their past or future they will perceive less overlap between their past life and their current life, and between their current life and their anticipated future life. This diminished perceived temporal overlap will result in the perception of less continuity between their past and current lives and between their current and future lives, creating more steeply inclining ST slopes from past to current LS, and current to future LS. Regardless of which of these two possibilities is supported, independent of temporal overlap, mindfulness will be less strongly related to STs, such that temporal overlap will at least partially account for the anticipated association between mindfulness and individuals' STs.

Temporal value. Past research has shown that individuals vary in the degree to which they value past versus anticipated future events, experiences, and outcomes (Caruso, Gilbert, & Wilson, 2008). Precisely, individuals place more importance on the

future than the past, unrelated to the valence of the events in question. In particular, individuals tend to value events, outcomes, and experiences that may occur in the future to a greater extent than such occurrences in the past. For example, individuals value identical events (e.g., a month of working or helping a neighbour) in the future significantly more than if the event was imagined in the past (Caruso et al., 2008). Moreover, individuals were willing to pay more money for a thank-you gift after imagining a favour in the future, than if they had imagined the same favour having been already performed in the past (Guo, Ji, Spina, & Zhang, 2012).

It remains unclear exactly why this asymmetry in temporal valuation exists. Some studies have suggested it is due to uncertainty in the future temporal period such that individuals view the past as fixed but the future as less limited, and as such individuals mentally simulate the future to a greater extent than they do the past (Van Boven & Ashworth, 2007). Alternatively, this temporal value asymmetry may be due to stronger affective experiences, such that individuals experience more intense emotions while imagining events in the future than when imagining the same events in the past (D'Argembeau & Van der Linden, 2004). Further, when individuals look to the past, negative events are seen as more intense than positive events; however, when they look to the future, positive and negative events are seen as equally as intense but still more intense than the past events. In addition to intensity of events, Caruso et al. (2008) suggested that the extent to which one feels stressed about an event may help explain this difference in temporal value between past and future events. In line with this suggestion, these researchers found that participants value future events more than past events, and

this asymmetry in value was mediated by stress level. That is, participants felt more stress relating to future events, which in turn was associated with greater valuation.

Although previous studies have examined temporal valuation with respect to the past and future, it remains unclear how individuals value the present in relation to both the past and future temporal periods. Furthermore, there has been no research investigating temporal value in relation to mindfulness, LS, and STs. Because mindfulness is a present-focused construct, I speculate that those higher in mindfulness may have higher valuation of their life at present (as well as lower valuation of their past and future lives) due to a heightened emphasis on, and perceived importance of, their present lives. In addition, consistent with research demonstrating a positive link between valuing something and deriving satisfaction from it (e.g.,Vansteenkiste, Neyrinck, Niemiec, Soenens, De Witte, & Van den Broeck, 2007), I speculate that individuals who place greater valuation on the current temporal period will have higher current LS, more steeply inclining STs between their past and current lives as well as less steeply inclining STs between their current and anticipated future lives. In contrast, no predictions were made as to how temporal value will be associated with the overall (i.e., past-future) ST slope.

Furthermore, I expect that temporal value will mediate the anticipated link between mindfulness and both LS and STs. Specifically, I expect that greater mindfulness will be linked with higher present value, and lower past and future value, and it is this heightened value of the present, and lessened value of the past and future that will lead to higher current LS, a more steeply inclining past to present ST, and a more gradually inclining present to anticipated future ST. Independent of temporal value, therefore, I

expect that mindfulness will be less strongly related to (or no longer significantly related to) current LS or STs. My rationale for this mediation prediction is as follows: Individuals higher in mindfulness will place a greater emphasis on the present moment, which will lead them to value their present life more, thus rating their current LS higher. Further, with regards to STs, this heightened valuation of their present lives will motivate individuals to put greater effort into actions that support and enhance their current LS. Through such efforts, individuals who value the present more will view their current life as more satisfying than individuals who value the present less. This heightened satisfaction with one's life at present will also result in individuals who value the present more reporting a greater difference between their past and current LS, seen as a more steeply inclining past-current ST, as well as a smaller difference between their present and anticipated future LS, creating a more gradually inclining current-future ST. As such, it is an individual's degree to which she values the present temporal period that will impact her current LS and her STs, and will at least partially account for the anticipated association between mindfulness and her current LS and STs.

The Present Study

The goal of the present research was to better understand how individuals differ with respect to LS and how they view their life unfolding over time in relation to mindfulness. In particular, I evaluated mindfulness as a predictor of how individuals view their LS and their life to be unfolding over time, and examined whether temporal perspective mediated these relations. This line of research thus helps us gain a better understanding of the relations among mindfulness, temporal perspective, LS, and STs, as well as the possible mediating role of temporal perspective (see Figure 1 and Figure 2).

My first goal was to evaluate whether a relation did in fact exist between mindfulness, LS and STs. More specifically, I investigated if an individual's trait mindfulness was associated with their LS and STs through a correlational design. I predicted that greater trait mindfulness would be associated with greater LS at each temporal period (but particularly current LS), as well as a more steeply inclining past-current ST slope and a more gradual slope for the current-future ST. (Note that as discussed above, however, I did not anticipate a link between mindfulness and the overall past-future ST.)

My second goal was to determine if there was a relation between trait mindfulness and four temporal perspectives components: temporal focus, temporal distance, temporal overlap, and temporal value. I anticipated that greater mindfulness would predict greater focus on the current temporal period, and less focus on the past and future compared to less mindful individuals; and greater valuation of the current temporal period and lesser valuation of the past and future temporal periods, compared to individuals lower in mindfulness. With respect to temporal distance and temporal overlap, two competing predictions were made. With respect to temporal distance, greater mindfulness may predict greater or lesser temporal distance between the past and present, and between the present and future. With respect to temporal overlap, greater mindfulness may predict lesser or greater temporal overlap between the past and present, and between the present and future,

My third goal was to understand how the four temporal perspective constructs were associated with individuals' LS ratings and STs. I predicted that (1) greater focus on the current temporal period would be linked with higher current LS ratings, more steeply

inclining STs between individual's past and current lives, and less steeply inclining STs between their present and anticipated future lives; (2) less temporal distance from the past to the present, and present to future would be related to less steeply inclining STs between the past and present, between the present and future; (3) greater temporal overlap between the past and present, and between the present and future would be related to less steeply inclining STs between the past and present, between the present and future; and (4) greater valuation of the current temporal period would be related to higher current LS ratings, more steeply inclining STs between their past and current lives, and less steeply inclining STs between their present and anticipated future lives.

Of particular interest was to identify the temporal perspective constructs that were associated with mindfulness, LS and STs, as those temporal constructs were possible mediating factors. Thus, my fourth goal was to examine whether the anticipated links between mindfulness and both LS and STs were mediated by one or more of the temporal perspective constructs. I anticipated that greater mindfulness would predict greater present temporal focus, which would lead to higher current LS, a more steeply inclining past-current ST, and a less steeply inclining current-future ST. Further, I anticipated that greater mindfulness would either predict greater temporal distance (past-current, current-future) which would lead to more steeply inclining past-current and current-future STs, or greater mindfulness would predict less temporal distance (past-current, current-future) which would lead to less steeply inclining past-current and current-future STs. I also anticipated that greater mindfulness would either predict greater temporal overlap (past-current, current-future), which would lead to less steeply inclining past-current and current-future STs, or greater mindfulness would predict less temporal overlap (past-

current, current-future), which would lead to more steeply inclining past-current and current-future STs. Lastly, I anticipated that greater mindfulness would predict greater temporal value of the present which would lead to higher current LS, a more steeply inclining past-current ST and a less steeply inclining current-future ST. After accounting for temporal perspective constructs, the link between mindfulness and both current LS and STs would be attenuated in magnitude and significance, if not rendered fully non-significant, consistent with the logic of statistical mediation (Baron & Kenny, 1986).

Method

Procedure

American participants between the ages of 18 and 40 years were recruited from Amazon Mechanical Turk (MTurk; see Appendix A for recruitment ad). MTurk workers were eligible for the study provided that they were within the target age range (as indicated in the study ad) and had achieved a 90% approval rating based on their previous MTurk activity. The study was completed on-line. Participants first read and provided assent to the consent form (Appendix B). They then completed a self-report questionnaire presented using Qualtrics software. Participants completed the following measures in the following order (measure details are provided below): Mindfulness (MAAS, Appendix C; FFMQ, Appendix D), LS (TSWLS, Appendix E; unanchored ladders, Appendix F), temporal focus (Appendix G), temporal distance (past and future, Appendix H), temporal overlap (past-current, current-future, and past-current; Appendix I), temporal value (past, current, and future, Appendix J), LS (anchored ladders, Appendix K), covariates (Rumination, Appendix L; Emotion Regulation, Appendix M), and demographics (Appendix N).The orderings of the following study measures were randomized within

measure-type across participants: mindfulness (MAAS, FFMQ), LS (TSWLS, ladders), temporal distance (past, future), temporal overlap (past-current, current-future, past-future), temporal value (past, current, future), and the covariate measures (rumination, emotion regulation).

Upon completion of the questionnaire, participants viewed a debriefing form (Appendix O). Participants who submitted their questionnaires and who met the requirements of the study were paid $1.50 USD, consistent with MTurk norms (Paollaci, Chandler, & Ipeirotis, 2010). On average, the questionnaire took participants 17.37 minutes (*SD* = 8.59) to complete.

Participants

In order to provide a high level of statistical power (.80 or greater) to detect a small to medium correlation (i.e., .15 or greater in absolute value) as statistically significant at $p < .05$, the target sample size was 300 participants, A total of 521 individuals read the consent information concerning the study. Of these individuals, 520 consented to the study. Of the 520 consenting individuals, 416 submitted the questionnaire, but only 359 were within the required target age range. (The additional 57 consenting individuals submitted the questionnaire but were not within the target age range. Thus, responses from these individuals were not analyzed.) Of these 359 participants, 305 (85% of 359) correctly completed both attention check items (described below), passed an additional variability check, and completed all of the primary study measures described below. Thus the analysis sample consisted of 305 American young adults (*M* age = 30.61, *SD* = 3.42; 44.9% male, 55.1% female; 74.4% White, 9.2% Black, 6.9% Latino, 6.9% Asian, 2.6% Other; 24.9% high school educated, 57.5%

college/university educated, 3.0% held professional degrees, 14.8% held graduate degrees; and 49.8% had never meditated before).

Measures

Descriptive statistics for each of the following measures are provided in Table 1.

Mindfulness.

One factor mindfulness. Trait mindfulness was assessed using Brown and Ryan's (2003) 15-item Mindfulness Attention Awareness Scale (MAAS; Appendix C). Participants were asked to indicate on a scale from 1 (*Almost always)* to 6 (*Almost never*) how often they experience the various items (e.g., "It seems like I am "running on automatic", without much awareness of what I am doing"). The item ratings were averaged (and reverse-scored where appropriate) into a single mindfulness score (Cronbach's $\alpha = .94$), with higher ratings indicating higher levels of trait mindfulness. The MAAS has been widely used in research on mindfulness, with ample evidence of its reliability (internal consistency, test-retest) and validity (Brown & Ryan, 2003; Doll, Hölzel, Boucard, Wohlscläger, & Sorg, 2015; Ostafin & Kassman, 2012).

Five factor mindfulness. The 39-item Five Factor Mindfulness Questionnaire (Baer et al., 2004; Appendix D) was also used, comprising five subscales, each based on seven or eight items rated from 1 (*Never or very rarely true)* to 6 (*Very often or always true*).The subscales pertain to observing (e.g., "When I'm walking, I deliberately notice the sensations of my body moving," $\alpha = .86$), describing (e.g., "I can easily put my beliefs, opinions, and expectations into words," $\alpha = .90$), acting with awareness (e.g., "I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted," $\alpha = .93$), nonjudging (e.g., "I criticize myself for having irrational or

inappropriate emotions," α = .93), and nonreacting (e.g., "I perceive my feelings and emotions without having to react to them," α = .84). The item ratings were averaged (and reverse-scored where appropriate) within each subscale, with higher scores indicating higher levels of each factor of mindfulness. The FFMQ has been shown to be a reliable and valid measure of mindfulness, with respect to the five subscale scores (Baer et al., 2008; Lilja, Lundh, Josefsson & Falkenström, 2012; Peters et al., 2015).

Life satisfaction and subjective trajectories.

Temporal satisfaction with life scale. Participants also completed the 15-item Temporal Satisfaction With Life Scale (Pavot, Diener, & Suh, 1998; see Appendix E). Participants completed three sets of five items, pertaining to their past (e.g., "there is nothing that I wanted to change about my past," α = .92), current (e.g., "I am satisfied with my current life," α = .94), and future (e.g., "I expect my future life will be ideal for me," α = .91) lives. Ratings were made on a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), and averaged within each temporal period, with higher scores indicating higher satisfaction. Individual differences in STs were operationalized using three computed slope scores: past-current (i.e., current LS minus past LS), current-future (i.e., future LS minus current LS), and past-future (i.e., future LS minus past LS); for all three slope scores, more positive values indicate greater perceived improvement in LS between temporal periods. The Temporal Satisfaction with Life Scale has been shown to be a reliable and valid measure of life satisfaction (Busseri et al., 2009b; Diulio, Cero, Witte, & Correia, 2014; Garcia, Rosenberg, & Siddiqui, 2011).

LS ladders. Participant's self-ratings of their LS in the past, at current, and in the anticipated future were assessed using the self-anchoring approach developed by

Kilpatrick and Cantril (1960; Appendix F). Participants were asked to rate each of the three items on an 11-point scale from 0 (*worst life possible*/*very dissatisfying*) to 10 (*best life possible/very satisfying*). Thus, higher ratings indicate greater satisfaction with one's life. As above, STs were operationalized using three computed slope scores: past-current slope, current-future slope, and a past-future slope. Single-item LS measures have been shown to be reliable and valid measures of life satisfaction across several studies (Lucas, & Donnellan, 2011; Oishi, Diener, Lucas, & Suh, 1999). Furthermore, the validity of the single-item self-anchoring ladder approach has also been demonstrated (e.g., McIntosh, 2001).

Anchored LS ladders. In addition, to evaluate whether the lack of temporal anchors for the ratings of recollected past and anticipated future collected using the previous two measures impacts the results, a second version of the three self-anchoring items was included at the end of the temporal perspective measures and before other covariates, asking participants to rate their past LS 5 years ago, their current LS, and their future LS 5 years from now (see Appendix K).

Temporal perspective.

Temporal focus. The 12-item Temporal Focus Scale (Shipp et al., 2009; Appendix G) was used to assess the frequency with which participants focus on their past, current, and future lives – each assessed with four items. Participants rated each item on a seven-point Likert scale ranging from 1(*never*) to 7 (*constantly*). Ratings were averaged within each temporal period (past $\alpha = .91$, present $\alpha = .81$, future $\alpha = .88$), with higher scores indicating greater focus on the particular temporal period. The Temporal

Focus Scale has been shown to be both reliable and valid across several studies (Chin & Holden, 2013; Cojuharenco, Patient & Bashshur, 2011; Shipp et al., 2009).

Temporal distance. Both objective and subjective distance to the past and future were assessed (temporal period counter-balanced across participants).

Objective distance. Participants were asked to indicate the calendar distance to the past and future lives they had previously envisioned when they were completing their LS ratings, based on an approach developed by Jones and Busseri (2012; Appendix H). Specifically, participants completed the following statement about distance to the past: "The past life I envisioned was _____ days (or months or years) in the past." In addition, participants completed the following statement about distance to the future: "The future life I envisioned was _____ days (or months or years) in the future." Responses were converted into number of years for analysis, with a high number indicating greater objective distance to the past and future, respectively. Note that any responses larger than 40 years (less than 2% of responses) were recoded to 40 years.

Subjective distance. To measure subjective distance to the past, participants answered two questions with the following prompt: "The past can sometimes feel close or far away. Thinking about your past life as you rated it on the previous pages, please indicate how close or far away it feels to you. Please complete <u>both</u> ratings." They were given two Likert-scale ratings ranging from 1 (*feels very close; feels like now*) to 9 (*feels very far away; feels very distant;* Ross & Wilson, 2002; see Appendix H). These scores were averaged (r = .81), with higher scores indicating greater subjective distance to the past. Similarly, to measure subjective distance to the future, participants answered two questions with the following prompt: "The future can sometimes feel close or far away.

Thinking about your future life as you rated it on the previous pages, please indicate how close or far away it feels to you. Please complete both ratings." They were given two Likert-scale ratings ranging from 1 (*feels very close; feels like now*) to 9 (*feels very far away; feels very distant*). These scores were averaged (r = .85), with a higher score indicating greater subjective distance to the future. These two items have been found to be both reliable and valid when used together (Ross & Wilson, 2002; Ross, Heine, Wilson & Sugimori, 2005; Van Boven, Kane, McGraw & Dale, 2010).

Temporal overlap. Temporal overlap was assessed using several measures, counter-balanced across participants. Participants completed a modified version of the future self-continuity scale (Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009). Specifically, on three separate pages participants were asked to choose one of seven figures depicting varying degrees of overlap (scores ranging from 1-*no overlap*, to 7- *complete overlap*) between their past and current lives; between their current and future lives; and between their past and future lives (Appendix I). Higher scores indicate greater perceived temporal overlap. The future self-continuity scale has been found to be reliable and valid in previous studies (Blouin-Hudon & Pychyl, 2015; Bryan & Hershfield, 2012; Fry & Debats, 2011).

In addition, using an approach developed by Bartels and Rips (2010; see also Frederick, 2003), participants completed three single-item ratings (one rating per temporal period comparison) of the degree of similarity between each pair of temporal perspectives (e.g., "your current life and the life you will have in the future"), ranging from 0 (*completely different*) to 100 (*exactly the same*). Higher ratings indicate greater similarity between the temporal periods (Appendix I). The connectedness measure has

been shown to be reliable and valid across several different studies (Bartels & Urminsky, 2011; Bartels, Kvaran & Nichols, 2013). For each of the three temporal period comparisons (i.e., past-current, current-future, past-future), the overlap and similarity ratings were standardized and averaged to form composite scores (past-current overlap r = .60, current-future overlap r = .65, past-future overlap r = .70), with higher scores indicating greater perceived overlap between temporal periods.

Temporal value. Temporal value was assessed using three sets of four items, one set per temporal period. Both subjective and objective temporal value was assessed (temporal period was counter-balanced across participants).

Subjective Value. For each temporal period, participants were asked three items regarding their subjective temporal value. Participants were asked to rate how important, valuable, and significant the temporal period is (scores ranging from 1-*not at all*, to 7-*extremely*). Within each temporal period, the three subjective ratings were averaged to form a composite subjective temporal value score (past α = .94, present α = .97, future α = .96), with higher scores indicating greater valuation of the temporal period.

Objective/Monetary Value. Participants answered one item regarding their objective temporal valuation of that temporal period. Participants were asked how much they value, in dollar amount, each temporal period (Appendix J). The three monetary temporal value items were examined separately from the subjective temporal value scores due to low correlations between these two sets of temporal value measures (i.e., rs between subjective and monetary temporal value scores were .35, .32, and .20, for past, current, and future temporal periods, respectively). Note that due to very skewed distributions and extreme scores on the monetary value items, responses for each

monetary rating were recoded as follows: $0; $1 to $500; $501 to $10,000; $10,001 to highest dollar value. Note also, that the subjective and monetary items were developed for this study and have not been employed in previous research.

Demographics. As detailed in Appendix N, participants reported their gender (male, female, transgendered, or other), age (in years), race (White, Black, Latino, Asian, Indian, Middle Eastern, other), and education level (did not finish high school, finished high school, college or university degree, professional degree, graduate degree). In addition, participants indicated how frequently they had meditated in the previous year (never, once a year, 2-3 times a year, monthly, 2-3time a month, weekly, 2-3 times a week, daily).

Covariates. Several additional constructs were also assessed as potential covariates in the mediation models.

Rumination. Participants completed the rumination subscale (12 items) from the Rumination-Reflection Questionnaire (Trapnell & Campbell, 1999; Appendix L). Ratings were made on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), and were averaged ($\alpha = .94$) such that higher scores indicate greater rumination. This scale has been shown to be a consistently reliable and valid measure of rumination (James, Verplanken & Rimes, 2015; Teasdale & Green, 2004; Trapnell & Campbell, 1999).

Emotion regulation. Participants also completed the 36-item Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004; Appendix M). Ratings were made on a five-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*), and were averaged ($\alpha = .95$) such that higher scores indicate greater problems with emotion

regulation. Both the total scale and the subcomponents have been shown to be reliable and valid across studies (Fox, Hong & Sinha, 2008; Gratz & Roemer, 2004; Salters-Pednault, Roemer, Tull, Rucker & Mennin, 2006).

Additional measures. Three additional scales pertaining to mind-wandering (see Appendix P) were included in the study questionnaire for exploratory purposes. Responses on these scales were not examined as part of this thesis.

Quality Control

Attention check. To ensure participants had read and completed the items being asked in their entirety, the study contained two attention checks. These attention checks were placed approximately 50% of the way through the questionnaire. Each attention check item instructed participants to provide a specific rating (e.g., "For this item, please click on the disagree response) within the context of one of the multi-item scales described above (i.e., scales assessing past-current temporal overlap and rumination, respectively). Some participants (n = 38, 11% of 359) were excluded from the analysis sample because they did not complete both attention check items correctly.

Variability check. To ensure that participants were not simply providing a single type of response within each multi-item scale (e.g., clicking the same response for each item on a multi-item scale), the standard deviation of each participant's responses was computed for each multi-item scale (MAAS, FFMW, TSWLS, TFS, RRQ, and DERS). A small number of participants (n = 9, less than 3%) were removed from the analysis sample because they had no variability on two or more multi-item scales.

Measure completion. A small number of participants (n = 7, less than 2%) were excluded because they did not complete each of the required study measures described above.

Results

In the analyses reported below, I examined the two measures of mindfulness, MAAS and FFMQ, in separate sets of analyses. (See Table 2 for pairwise correlations between the MAAS and FFMQ measures.) Further, I employed the multi-item TSWLS measure as the primary indicator of LS and STs, rather than the single-item LS ladders, given (a) the higher reliability of the multi-item TSWLS measure, and (b) the TSWLS was designed to be used without temporal anchors for the past and future whereas the LS ladders are typically used with temporal anchors. (See Table 3 for pairwise correlations among all the LS measures.) Thus, results are presented below based on the MAAS and TSWLS measures, and then based on the FFMQ and TSWLS measures. (Additional analyses based on the unanchored and anchored LS ladders are provided in the *Supplementary Analyses* section.)

Results based on MAAS and TSWLS

Mindfulness and life satisfaction. My first goal was to evaluate the relation between mindfulness, LS, and STs. To do so, I examined the correlations between mindfulness – as assessed by the MAAS scale – and (i) recollected past, current, and anticipated future LS, as well as (ii) the ST slopes (i.e., past-current slope, current-future slope, past-future slope), based on the multi-item TSWLS scale.

I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). As shown in Table 2, MAAS scores were

positively correlated with current and anticipated future LS, but not with recollected past LS. I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope. Results indicated that MAAS scores were not significantly correlated with any of the ST slopes.

Together, these findings support my predictions concerning current and anticipated future LS, but not recollected past LS. Further, these findings do not support my predictions concerning the past-current and current-future ST slopes, but are consistent with my prediction concerning the past-future ST slope.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. To do so, I examined the correlations between mindfulness—as assessed by the MAAS scale—and (i) temporal focus (past, current, future); (ii) temporal distance (past, future), subjective and objective; (iii) temporal overlap (past-current, current-future); (iii) as well as temporal value (past, current, future), subjective and monetary.

Temporal focus. I anticipated that greater mindfulness would be related to greater focus on the current temporal period, and less focus on the past and future temporal periods. As shown in Table 5, MAAS scores were negatively correlated with past focus, positively correlated with current focus, but not significantly correlated with future focus.

Temporal distance. I anticipated that greater mindfulness would predict either greater temporal distance or less temporal distance between the past and present, and the present and the future. Results indicated that the MAAS scores were positively correlated with objective distance to the past, not significantly correlated with subjective distance to

the past, and not significantly correlated with subjective or objective distance to the future.

Temporal overlap. I anticipated that greater mindfulness would predict either greater temporal overlap or less temporal overlap between temporal periods. Results indicated that MAAS scores were not significantly correlated with past-current or current-future.

Temporal value. I anticipated that greater mindfulness would predict greater value of one's life at present, and less value of one's recollected past and anticipated future lives. Results indicated that MAAS scores were not significantly correlated with subjective value of the recollected past, but were negatively correlated with monetary value of the recollected past; and were not significantly correlated with subjective or monetary value of the present and the anticipated future.

Thus, my hypotheses were largely not supported, as the MAAS scores were largely unrelated to any of the temporal perspective measures, with four exceptions: temporal focus on the past and current, objective temporal distance to the past, and monetary value of the recollected past.

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables (including the ST slopes). To do so, I examined correlations between temporal focus (past, current, future), subjective and objective temporal distance (past, future), temporal overlap (past-current, current-future), and subjective and monetary temporal value (past, current, future) with (i) ratings of recollected past, current, and anticipated future LS, as well as (ii) the ST slopes (past-current, current-future). Pairwise correlations between

each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are shown in Table 6.

Temporal focus. I anticipated that a greater focus on the current temporal period would predict higher current LS, a greater incline in the slope of past-current ST, and less incline in the slope of the current-future ST. As seen in Table 6, current focus was significantly positively correlated with current LS and past-current ST slope, and negatively correlated with current-future ST slope.

Temporal distance. I predicted that less temporal distance from present to past and present to anticipated future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past objective distance was significantly positively correlated with past-current ST slope, but was not significantly correlated with current-future ST slope. Past subjective distance was not significantly correlated with past-current ST slope, but was significantly positively correlated with current-future ST slope. Future objective distance was not significantly correlated with the ST slopes. Future subjective distance was significantly negatively correlated with past-current ST slopes, but was not significantly correlated with current-future ST slopes.

Temporal overlap. I predicted that greater temporal overlap from present to past and present to future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past-current temporal overlap was significantly negatively correlated with past-current ST slope, but was not significantly correlated with current-future ST slope. Further, current-future overlap was significantly positively correlated with past-current ST slope and significantly negatively correlated with current-future ST slope.

Temporal value. I predicted that greater valuation of the present would be related to higher current LS and more steeply inclining STs between the recollected past and current temporal periods, and less steeply inclining STs between the current and anticipated future temporal periods. Present subjective value was significantly positively correlated with current LS and past-current ST slope, and was significantly negatively correlated with current-future ST slope. Present monetary value scores were significantly positively correlated with current LS and past-current ST slope, and significantly negatively correlated with current-future ST slopes.

Thus, these findings provide full support (i.e., all hypothesized relations were supported by significant correlations in the anticipated directions) for my hypotheses concerning temporal focus, temporal overlap, and temporal value, and partial support (i.e., all significant correlations were in the expected directions, even though not all of the hypothesized associations were significant) for my hypotheses concerning temporal distance.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. Note that, as shown in Table 2, of the LS variables relevant to the mediation hypotheses (i.e., current LS, past-current ST, current-future ST), MAAS scores were significantly correlated only with current LS. Furthermore, as shown in Table 5, of the relevant hypothesized temporal perspective mediators for the relation between mindfulness and current LS (i.e., current temporal focus, present subjective and monetary temporal value), MAAS scores were significantly correlated only with current

temporal focus. Thus, mediation was examined only with respect to the association between MAAS scores and current LS, as mediated by current temporal focus. To do so, I employed hierarchical multiple regression analysis. In Step 1, I assessed the predictive effect of MAAS on current LS; in Step 2, I assessed the joint and unique predictive effects of MAAS and current temporal focus on current LS.

I anticipated that after accounting for current temporal focus, the link between mindfulness and current LS would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher MAAS scores would predict greater focus on the present, which would lead to higher current LS. As shown in Table 7, at Step 1 of the regression model, MAAS scores had a significant positive predictive effect on current LS, which was reduced in magnitude and statistical significance at Step 2. At Step 2, MAAS scores no longer had a unique predictive effect on current LS; rather, current temporal focus had a unique positive predictive effect on current LS. That is, at Step 2, higher current LS was predicted only by greater focus on the present. (Further, the indirect effect of MAAS on current LS was statistically significant; $p = .002$.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in mediating the link between mindfulness and LS.

Results based on FFMQ and TSWLS

Mindfulness and life satisfaction. My first goal was to evaluate the relation between mindfulness, LS, and STs. To do so, I examined the correlations between mindfulness – as assessed by the five factors of the FFMQ scale – and (i) recollected past, current, and anticipated future LS, as well as (ii) the ST slopes (i.e., past-current

slope, current-future slope, past-future slope), based on the multi-item TSWLS scale. Further, I regressed each LS rating and the ST slopes onto the five FFMQ factor scores simultaneously in order to evaluate the unique predictive effects of each of the five factors on the LS and ST slope scores. I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope.

With respect to the pairwise correlational results, as shown in Table 8, Observe scores were not significantly correlated with recollected past LS, current LS, anticipated future LS, present-current ST slope, and past-future ST slope, but were significantly positively correlated with current-future ST slope. Describe scores were not significantly correlated with recollected past LS, were significantly positively correlated with current LS, anticipated future LS, and past-current ST slope, were not significantly correlated with current-future ST slope, but were significantly positively correlated with past-future ST slope. Act with Awareness scores were not significantly correlated with recollected past LS, but were significantly positively correlated with current LS, anticipated future LS, and present-current ST slope, were significantly negatively associated with current-future ST slope, and were significantly positively correlated with past-future ST slope. Nonjudging scores were significantly positively correlated with recollected past LS, current LS, anticipated future LS, and past-current ST slope, were significantly negatively correlated with current-future ST slope, and not significantly correlated with past-future ST slope. Finally, Nonreacting scores were significantly positively correlated

with recollected past LS, current LS, and anticipated future LS, but was not significantly correlated with any of the ST slopes.

With respect to the regression results, as shown in Table 9, mindfulness was found to be positively predictive of recollected past, current, and anticipated future LS. Specifically, in each regression model unique and positive predictive effects were found for the Nonjudging scores, and Describe scores (for anticipated future LS only). In contrast, mindfulness was not found to be significantly predictive with any of the ST slope scores. That is, none of the five FFMQ factor scores were uniquely predictive of any of the ST slope scores. Together, these findings provide full support for the hypothesized positive predictive effect of mindfulness on ratings of recollected past, current, and anticipate future LS – at least with respect to the Nonjudging factor of mindfulness. In contrast, these findings provide no support for the hypothesized predictive effects of mindfulness on the past-current and current-future ST slopes, but full support for the hypothesized non-significant predictive effect of mindfulness on the past-future ST slope.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. To do so, I examined the correlations between mindfulness—as assessed by the FFMQ scale—and (i) temporal focus (past, current, future); (ii) temporal distance (past, future), subjective and objective; (iii) temporal overlap (past-current, current-future); (iii) as well as temporal value (past, current, future), subjective and monetary. Further, I regressed each temporal perspective variable onto the five FFMQ factor scores simultaneously in order to evaluate the combined predictive ability of all five mindfulness factors together,

plus the unique predictive effects of each of the five factors on the temporal perspective variables.

Temporal focus. I anticipated that greater mindfulness would be related to greater focus on the current temporal period, and less focus on the past and future temporal periods. With respect to the pairwise correlations, as shown in Table 10, past focus was significantly positively correlated with Observe scores, significantly negatively correlated with Describe, Act with Awareness, and Nonjudging scores, but was not significantly correlated with Nonreacting scores. Current focus was not significantly correlated with Observe scores, but was significantly positively correlated with Describe, Act with Awareness, Nonjudging, and Nonreacting scores. Future focus was significantly positively correlated with Observe and Describe scores, was not significantly correlated with Act with Awareness, significantly negatively correlated with Nonjudging scores, and significantly positively correlated with Nonreacting scores.

With respect to the regression results, as shown in Table 11, past focus was significantly predicted by Observe (positive predictive effect), Act with Awareness (negative), and Nonjudging (negative) scores; current focus was significantly (and positively) predicted by Describe, Act with Awareness, and Nonreacting scores; and future focus was significantly predicted by Describe (positive), Nonjudging (negative), and Nonreacting (positive). Together, these results provide mixed support (i.e., some of the significant correlations were in the hypothesized directions, but other significant associations were in the opposite directions from those hypothesized) for my predictions regarding past and future focus, but full support regarding current focus.

Temporal distance. I anticipated that greater mindfulness would predict either greater temporal distance or less temporal distance between the past and present, and the present and the future. With respect to the pairwise correlations, past objective distance was not significantly correlated with Observe scores, was significantly positively correlated with Describe and Act with Awareness scores, but not significantly correlated with Nonjudging and Nonreacting scores. Past subjective distance was not significantly correlated with Observe scores, was significantly positively correlated with Describe scores, was not significantly correlated with Act with Awareness scores, was significantly positively correlated with Nonjudging scores, and not significantly correlated with Nonreacting scores. Future objective distance was not significantly correlated with any FFMQ scores. Future subjective distance was not significantly correlated with Observe, Describe, and Act with Awareness scores, was significantly negatively correlated with Nonjudging scores, but was not significantly correlated with Nonreacting scores.

With respect to the regression results, as shown in Table 11, past objective distance was not predicted by any FFMQ scores; past subjective distance was predicted only by Describe scores (positively); and future objective and subjective distance were not significantly predicted by any FFMQ scores. Together, these results provide no support for my predictions regarding past objective, future subjective, and future objective distance, but provide full support for past subjective distance.

Temporal overlap. I anticipated that greater mindfulness would predict either greater temporal overlap or less temporal overlap between temporal periods. Results from the pairwise correlations indicated, as shown in Table 10, that past-current overlap was

not significantly correlated with any FFMQ scores. Current-future overlap was not significantly correlated with Observe and Describe scores, was significantly positively correlated with Act with Awareness and Nonjudging scores, and was not significantly correlated with Nonreacting scores.

Regression results indicated that past-current and current-future were not predicted by any FFMQ factors (see Table 11). These findings contradict my predictions regarding the anticipated links between mindfulness and temporal overlap.

Temporal value. I anticipated that greater mindfulness would predict greater value of one's life at present, and less value of one's recollected past and anticipated future lives. With respect to the pairwise correlations, as shown in Table 10, past subjective value was not significantly correlated with any FFMQ scores. Past monetary value was not significantly correlated with Observe scores, was significantly negatively correlated with Describe, Act with Awareness, and Nonjudging scores, but not significantly correlated with Nonreacting scores. Present subjective value was not significantly correlated with Observe scores, but was significantly positively correlated with Describe, Act with Awareness, Nonjudging, and Nonreacting scores. Present monetary value was not significantly correlated with any FFMQ scores. Future subjective value was not significantly correlated with Observe scores, was significantly positively correlated with Describe scores, but was not significantly correlated with Act with Awareness, Nonjudging, and Nonreacting scores. Future monetary value was not significantly correlated with Observe and Describe scores, was significantly negatively correlated with Act with Awareness and Nonjudging scores, but was not significantly correlated with Nonreacting scores.

With respect to regression results, as shown in Table 11, past subjective value was not significantly predicted by any FFMQ scores. Past monetary value was significantly (negatively) predicted by Describe scores and (positively) Nonreacting scores; present subjective value was significantly (positively) predicted only by Nonjudging scores; present monetary value was not significantly predicted by any FFMQ scores; future subjective value was significantly (positively) predicted only by Describe scores; and future monetary value was significantly (negatively) predicted only by Nonjudging scores. Overall, these findings provide mixed support for my hypothesis regarding the anticipated links between mindfulness and past, present, and future value.

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables and ST slopes. To do so, I examined correlations between temporal focus (past, current, future), subjective and objective temporal distance (past, future), temporal overlap (past-current, current-future), and subjective and monetary temporal value (past, current, future) with (i) ratings of recollected past, current, and anticipated future LS, as well as (ii) the ST slopes (past-current, current-future). Pairwise correlations between each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are described above in the MAAS and TSWLS section and are shown in Table 6.

As noted above, the findings provide full support for my hypotheses concerning temporal focus, temporal overlap and temporal value, and partial support for my hypotheses concerning temporal distance.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. Note that, as shown in Table 9, of the relevant LS variables, FFMQ scores were significantly predictive of only current LS; more specifically, Nonjudging scores were uniquely predictive of current LS. Furthermore, as shown in Table 11, of the relevant hypothesized temporal perspective mediators for the relation between mindfulness and current LS (i.e., current temporal focus, present subjective and monetary temporal value), Nonjudging scores were uniquely predictive of only present subjective temporal value. Thus, mediation was examined only with respect to the association between Nonjudging scores and current LS, as mediated by present subjective temporal value. To do so, I employed hierarchical multiple regression analysis. In Step 1, I assessed the predictive effect of the Nonjudging scores on current LS; in Step 2, I assessed the joint and unique predictive effects of the Nonjudging scores and present subjective temporal value on current LS.

I anticipated that after accounting for present subjective temporal value, the link between mindfulness and current LS would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher Nonjudging scores would predict greater subjective value of the present, which would lead to higher current LS. As shown in Table 12, at Step 1 of the regression model, Nonjudging scores had a significant positive predictive effect on current LS, which was reduced in magnitude at Step 2. At Step 2, FFMQ Nonjudging scores had a smaller unique predictive effect on current LS, and in addition present subjective temporal value

had a unique positive predictive effect on current LS. That is, at Step 2, higher current LS was predicted by higher Nonjudging scores and greater subjective valuing of the present. (Further, the indirect effect of Nonjudging on current LS was statistically significant; p = .001.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in (at least partially) mediating the link between mindfulness and LS.

Discussion

A summary of the study goals, hypotheses and results is provided in Table 13.

Goal 1: Mindfulness and LS

The first goal of the current study was to evaluate whether a relation did in fact exist between mindfulness, LS, and STs. It was hypothesized that greater mindfulness would be associated with greater LS at each temporal period (but particularly current LS) and also associated with a more steeply inclining past-current ST slope and a more gradual current-future ST slope, but no link was predicted with respect to the past-future ST slope. These predictions were partially supported. Specifically, as anticipated, greater mindfulness was associated with higher LS at each temporal period and had no association with the past-future ST slope; however, contrary to the predictions, greater mindfulness was not associated with the past-current or the current-future ST slopes. Overall, these findings suggest that mindfulness is associated with the overall level of LS at each temporal period but is not related to individuals' views of how their life is unfolding over time (as reflected in the ST slopes).

Implications for LS and ST. With respect to LS and ST theory, previous research has proposed that the ST approach captures people's beliefs about how life is

unfolding over time (Busseri et al., 2009a; Shmotkin, 2005), such that they are capturing something beyond just ratings of LS of the recollected past, current, and anticipated future. The current findings provide additional evidence that LS and STs may capture different beliefs, given that mindfulness was associated with the separate LS ratings, but not with the ST slopes. Indeed, such an interpretation is consistent with previous work by Busseri and Merrick (2016), who observed that the slopes of the STs were not strongly related to individuals' perceived discrepancy between their current and future lives. However, as this study is the first to look at the links between mindfulness, LS, and STs, future research is needed to confirm the present findings in relation to mindfulness, and with respect to perceived change across all three temporal periods. Further, the current study measured STs based on individuals' evaluations of their recollected past, present, and anticipated future LS – rather than capturing individuals' views concerning perceived change in the LS over time (e.g., asking individuals how they view their LS has having changed from past to current, and from current to future). Thus, future research could investigate other methods of measuring individuals' beliefs in the degree and type of change in LS they have experienced from the past, and anticipate experiencing in the future. It is also possible, however, that the apparent separation between the individual LS ratings and the subjective perceptions of change in LS provide valuable insights concerning the nature of mindfulness and its connection with temporal perspective, as I discuss below.

Implications for temporal perspective. With respect to temporal perspective theory (Lasane & O'Donnell, 2005), the above results suggesting that LS ratings and STs may be capturing different things further implies that temporal perspective may also

contain two aspects: the first pertaining to the divisions between the three temporal periods; and the second pertaining to the unions among the three temporal periods. That is, temporal perspective can perhaps be understood in terms of each temporal period being distinct (past vs. present vs. future), and in terms of the relations between temporal periods (past-present, present-future, past-future). Accordingly, temporally-oriented constructs such as mindfulness may be related to only one aspect of temporal perspective (i.e., divisions or unions of temporal periods), rather than to both. Indeed, the present results suggest that mindfulness is related to the LS evaluations of the distinct temporal periods (past, present, future), rather than to the implied similarities (vs. differences) between the LS evaluations across temporal periods (past-present, present-future, past-future) as reflected in the ST slopes. Further research should investigate these possibilities, for example by assessing the extent to which high versus low mindful individuals view their satisfaction with their past, current, and future lives as distinct versus interrelated in some fashion.

Implications for mindfulness. With respect to theories of mindfulness, the results suggest that mindfulness is not associated with the normative belief that life gets better and better (Newby-Clark & Ross, 1998). Nonetheless, the present findings support previous research suggesting that mindfulness is associated with positive outcomes, including higher levels of well-being (Brown & Ryan, 2003; Prakash et al., 2015). Additionally, results suggest that mindfulness is related to more than just the present temporal period. That is, although mindfulness is typically defined as a present-focused awareness (Brown & Ryan, 2003), there may be something about mindfulness that also extends to the recollected past and into the anticipated future.

One possibility for what this temporally-expansive aspect of mindfulness may be, comes from the results concerning the simultaneous regression of the LS evaluations on all five FFMQ factor scores. Of the various components of mindfulness captured by the five factor operationalization (Baer et al., 2008), only the Nonjudging factor was uniquely linked to the LS evaluations at *all three* temporal periods. Of interest, the majority of the items within the Nonjudging sub-scale refer to the absence of negative judgements of one's thoughts and feelings, rather than nonjudgments of both positive and negative thoughts and feelings. This distinction is important because in forming personal LS evaluations (of the past, present, or future), individuals high on the Nonjudging factor may have access to primarily positively-valenced information, rather than a mix of positive and negative evaluative information, due to lack of negative appraisals of one's thoughts and feelings. That is, the pool of information from which individuals may be able to draw may be limited to primarily positive thoughts and feelings about one's life. Previous LS research has found that the amount of (im)balance of pleasure and displeasure in one's life influences one's cognitive evaluations of one's life (Schimmack, Diener, & Oishi, 2002; Schimmack, Schupp, & Wagner, 2008). Thus, an individual with higher Nonjudging scores (reflecting less access to evaluations of previous negative thoughts and feelings) may experience a greater preponderance of pleasure versus displeasure, leading to higher LS ratings.

The present findings also provide unique insights concerning the one-factor versus five-factor conceptualization of mindfulness. The unidimensional conceptualization of mindfulness (Brown & Ryan, 2003) suggests that it is individuals' greater awareness of and attention to the present moment that is related to positive

outcomes. In contrast, the multidimensional conceptualization suggests there is more involved to being mindful than just paying to attention to and being aware of the present moment (Baer et al., 2008), and that these other components also capture important and beneficial aspects of mindfulness. Of interest, the FFMQ Act with Awareness factor items are comprised primarily of the MAAS items, such that the Act with Awareness factor score captures essentially the same content as the MAAS scale. Accordingly, if mindfulness is best conceptualized as a unidimensional construct, one would expect that after controlling for the other four factors of the FFMQ, the Act with Awareness score would be related to positive outcomes such as LS. However, in the present results it was the Nonjudging factor that was consistently and uniquely related to LS, not the Act with Awareness score.

Such findings suggest that the beneficial aspects of mindfulness may not derive primarily from greater attention to and awareness of the present, but rather to a stronger tendency to accept (rather than judge) one's negative thoughts and feelings (Petrocchi & Ottaviani, 2016). Indeed, several researchers and theorists have suggested that greater acceptance of one's experiences (positive or negative) is a critical aspect of mindfulness (Baer et al., 2008; Feldman et al., 2007). From this perspective, the one-factor approach misses a critical psychological component of mindfulness. However, another possibility is that greater acceptance (i.e., nonjudging) is an outcome of greater attention to and awareness of one's moment-to-moment thoughts and feelings. If so, then the Nonjudging factor may be a mediator of the positive link between the Act with Awareness factor and LS. That is, individuals with higher mindfulness pay greater attention to and have greater awareness of the present moment, leading them to not judge their negative thoughts and

beliefs, which then leads to more positive LS ratings. Given the cross-sectional nature of the present study design, it is not possible to distinguish between these possibilities. Rather, future research using both experimental and longitudinal designs is needed to further investigate these competing operationalisations of mindfulness.

Goal 2: Mindfulness and temporal perspective

The second goal of the study was to determine if there was a relation between mindfulness and the four temporal perspective components. It was hypothesized that greater mindfulness would be associated with greater focus on the current temporal period, less focus on the past and future, greater valuation of the current temporal period, and less valuation of the past and future temporal periods. With respect to temporal distance and temporal overlap, two competing predictions were made. For temporal distance, it was hypothesized that greater mindfulness would be associated with either greater or lesser temporal distance between the past and present, and between the present and future temporal periods. With respect to temporal overlap, it was hypothesized that greater mindfulness would be associated with either lesser or greater temporal overlap between the past and present, and between the present and future temporal periods. These predictions were partially supported, with there being a significant relation between mindfulness and temporal focus, distance, and value, but not with temporal overlap. Specifically, as anticipated, mindfulness was associated with increased temporal focus on the present, and less focus on the past; however, contrary to predictions, mindfulness was associated with increased future focus. Further, as predicted, mindfulness was associated with decreased temporal value of the past and increased temporal value of the present; however, contrary to predictions, mindfulness was associated with increased (rather than

decreased) valuing of the future. With respect to the competing hypotheses for temporal distance and temporal overlap, the results support our prediction that there was an association between mindfulness and temporal distance to the past (greater temporal distance); however, contrary to predictions, mindfulness was not associated with temporal distance to the future nor with temporal overlap between the present and both past and future. Overall, these results suggest that temporal overlap may not be informative with respect to understanding individual differences in mindfulness.

Implications for temporal perspective. With respect to temporal perspective theory (Lasane & O'Donnell, 2005), similar to above, the current results suggest that there may be two aspects to temporal perspective: one pertaining to the distinct temporal periods and another pertaining to the unions of temporal periods. In addition, the present findings also suggest that the different components of temporal perspective may not be related to a given construct in the same ways. That is, finding that a construct (e.g., mindfulness) is associated with one component of temporal perspective (focus vs. distance vs. overlap vs. value), does not imply that it is also linked with the other temporal perspective components in the same way. Further, the results suggest that a construct can be related to a specific temporal period of one temporal perspective component (e.g., temporal focus on the past), but not with the same temporal period in a different temporal perspective component (e.g., temporal distance to the past). Such patterns suggest that in terms of associations with other variables (such as mindfulness), each temporal perspective component is unique from one another, as is each temporal period within and across temporal perspective components.

And yet, individuals higher in mindfulness were focused less, and placed less value, on the past and more on the present and future temporal periods. It is possible, therefore, that higher mindful individuals focus more on the present moment and recognize that to be satisfied with their "present moment" in the future, they have to focus not only on the present, but on things that will maintain their satisfaction into the future. In contrast, focusing on the past may not provide any benefits for their future lives, and as such higher mindfulness would be associated with less past focus. With regards to temporal value, individuals high in mindfulness may place less value on the past but greater value on the present and future temporal period because such individuals no longer have control over past moments but they do have control over their present and future moments. Thus, higher mindful individuals may view the present and future temporal period as potential moments to increase their satisfaction with life, where they may view the past as no longer helpful and as such, place less value on the past. These speculations notwithstanding, further research is clearly needed to understand better the internal structure of temporal perspective based on multiple components and multiple temporal periods. Further work is also needed to evaluate the associations between temporal perspective components and temporal periods in relation to other theoretically relevant variables (e.g., realism/vividness, consideration of future consequences, motivation, optimism, beliefs about stability/change over time).

The present results suggest that mindfulness is associated with temporal focus and value, but not fully with temporal overlap and distance, implying that mindfulness is linked with the aspect of temporal perspective pertaining to the distinct temporal periods, rather than to the aspect of temporal perspective pertaining to the unions of temporal

periods. The present study was the first study to evaluate these issues. Thus, future research is needed to determine the reliability of the present findings. Further, the current study investigated the link between mindfulness and temporal perspective using a correlation design; thus further research (particularly longitudinal and experimental) is needed to evaluate the direction(s) of the relation between mindfulness and temporal perspective.

Implications for mindfulness. With respect to theories of mindfulness, the current results suggest that mindfulness has a particular relation with the present temporal period, as it was found to be associated with current temporal focus, past-current temporal distance, and present monetary temporal value. This result supports prior research suggesting that mindfulness is a present-focused construct (Kabat-Zinn, 1994). Indeed, some theorists have suggested that mindfulness should be conceptualized only with respect to present moment awareness (e.g., Brown & Ryan, 2003). In contrast, others have shown that mindfulness is linked with temporal perspective constructs beyond the present temporal period, including the past and future (Drake, Duncan, Sutherland, Abernethy & Henry, 2008; Seema & Sircova, 2013). The current findings suggest that mindfulness is not related to just the present moment, but rather that mindfulness is related to greater focus on the present and future, as well as less focus on the past. Such findings raise novel questions concerning mindfulness, including whether it has a distinct relation with each of the temporal periods, or with the subjective past distinct from the present and future. Further research is thus needed to more fully understand the relation mindfulness has with the past and future, in addition to the present temporal period. For example, future studies could examine mindfulness and all

three temporal periods in relation to other temporally-oriented constructs such as reminiscing about the past (Fivush & Nelson, 2006) and optimism concerning the future (Carver, Scheier, & Segerstrom, 2010). Further, as noted above, research is also needed to determine the direction(s) of the relation between mindfulness and temporal perspective, including the potential influence of mindfulness on how individuals think about and process information concerning each of the temporal periods.

The current findings also provide additional insights on the various conceptualizations of mindfulness. As discussed above, if mindfulness is best conceptualized as a unidimensional construct comprising primarily acting with awareness of the present moment (Brown & Ryan, 2003), one would expect that after controlling for the other four factors of the FFMQ, the Act with Awareness score would be uniquely related to temporal perspective components. However, of the various temporal perspective variables, the Act with Awareness subscale was only uniquely related to temporal focus on the past and present. In contrast, in support of the multidimensional conceptualization (Baer et al., 2008), several of the other FFMQ components were uniquely related to various temporal perspective components beyond temporal focus and even controlling for Act with Awareness – in particular, the Nonjudging, Nonreacting, and Describe components. However, there was not a common pattern of relations between these FFMQ components and the different temporal perspective components or common patterns with respect to any of the three temporal periods.

Nonetheless, the Nonjudging, Nonreacting, and Describe components do share a commonality. These three components are comprised of items that originate from scales that conceptualize mindfulness as a multidimensional construct: the Kentucky Inventory

of Mindfulness Skills (Baer, Smith, & Allen, 2004), the Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), and the Southampton Mindfulness Questionnaire (Chadwick, et al., 2008). Of particular interest, these scales conceptualize mindfulness as including a Nonjudging aspect that was intentionally excluded from the MAAS (Brown & Ryan, 2003). The present findings thus provide additional evidence that novel insights may emerge from employing a multidimensional conceptualization of mindfulness. Indeed, had only the unidimensional approach been employed (i.e., MAAS only), links between mindfulness and several temporal perspective components would not have been identified, including past temporal focus, subjective temporal distance to the past, and temporal value of the present and future. Such findings suggest that it may be valuable to study mindfulness based on more than just one component. However, further research is needed to determine the reliability of these findings, as well as to test the competing unidimensional versus multidimensional conceptualizations of mindfulness in a manner that would inform causal direction. In addition, future research can expand upon the present exploratory approach by developing more specific predictions concerning each of the individual components of the five-factor model of mindfulness in relation to particular aspects of temporal perspective.

Goal 3: Temporal perspective and LS

The third goal of the current study was to understand how the four temporal perspective constructs were associated with individuals' LS (including STs). First, it was hypothesized that greater focus on the current temporal period would be related to higher current LS, more steeply inclining STs between individuals' recollected past and current lives, and less steeply inclining STs between their present and anticipated future lives.

These hypotheses were fully supported. Second, it was hypothesized that less temporal distance from the past to the present, and the present to the future would be related to less steeply inclining STs between the past and the present and between the present and the future. These hypotheses were partially supported, as less temporal distance between the past and present was associated with less steep STs from past to present; however, contrary to predictions, less temporal distance from present to future was not linked with STs from present to future. Third, it was hypothesized that greater temporal overlap between the past and the present, and between the present and the future would be related to less steeply inclining STs between the past and the present and between the present and the future. These hypotheses were mostly supported. That is, as anticipated, greater temporal overlap between the past and the present was linked with less steep STs from past to present and greater temporal overlap between present and future was linked with less steep STs from present to future.. Lastly, it was hypothesized that greater valuation of the current temporal period would be linked with higher current LS, more steeply inclining STs between their past and current lives, and less steeply inclining STs between their present and future lives. These hypotheses were fully supported.

Implications for LS and ST. With respect to LS and ST theory, the present findings support the general prediction that there is a relation between how individuals view their LS unfolding over time and temporal perspective (Busseri et al., 2009a; Busseri & Merrick, 2016). As well, these findings provide support for previous research indicating that there is a difference between how an individual views her life as having unfolded from the past to the present versus how she anticipates it will unfold into the future (Busseri et al., 2009b, Choma, Busseri, & Sadava, 2014). That is, a particular

temporal perspective construct may have different links with the past-current ST and the current-future ST, suggesting that the two STs may represent two different types of beliefs, and thus may function at least partially independently of one another.

More specifically, there appears to be something unique about how an individual focuses on and values the present temporal period that is further linked with how they view their past, current, and anticipated future lives. With respect to temporal focus, the present findings suggest that more focus on the present temporal period is associated with more optimal outcomes, that is, higher current LS, greater perceived improvement from past to current LS, and greater anticipated stability from current to future LS. The link between greater temporal focus on the present and higher current LS is consistent with previous research examining this association (Busseri et al., 2013). One possible explanation is that heightened focus on the present will lead individuals to become more aware of what is satisfying in their present life and allow them to continue pursuing actions that support their current LS. Such individuals may view their current life as more satisfying, and thus also report a greater difference between their past and current LS, along with a smaller difference between their current and anticipated future LS. Another possible explanation for this link is that individuals may be able to distinguish better between what makes them more satisfied now than in the past and strive to continue only those actions, thoughts, or behaviours into the future, creating a steep past-current ST and a more gradual current-future ST. Given that no previous research has examined these notions, however, future studies are needed to examine directly these speculations. For example, researchers could ask individuals to report on what is satisfying in their current lives, what actions they are pursuing (and plan on continuing to pursue) in order to

maintain a satisfying life, as well as their perceived differences between their past and current, and current and future lives.

With respect to temporal value, the present findings suggest that viewing one's life at present as more valuable is linked with more optimal outcomes (i.e., current LS, steeper past-current ST, less steep current-future ST). One possible explanation is that heightened valuation of one's present life will motivate individuals to put greater effort into actions that support their current LS, which will also lead such individuals to report a greater difference between their past and current LS as well as a smaller difference between their current and anticipated future LS. Individuals who value the present to a greater degree may also place greater importance on things that are satisfying in the present. Future studies could directly examine these speculations through having participants rate the amount of effort they are investing in their current lives, how important they view their current lives, in addition to their perceived differences between their past and current, and current and future lives.

In addition, the results suggest that less of a connection to the past, but more of a connection to the future is linked with positive outcomes. More specifically, with respect to a connection with the past, the present findings suggest that viewing the past as further away is linked with more positive outcomes (i.e., steeper past-current STs). Such findings are consistent with some previous research indicating that greater perceived distance to the past is linked with greater likelihood of forgiveness (Wohl & McGrath, 2007) or better face recognition (Wyer, Perfect, & Pahl, 2010). One possible explanation is that individuals who view the past as further away also perceive greater opportunities for changes they were able to make in order to have improved their life. Individuals who

view their past as far away from their present may also believe that their past LS is substantially different than their current LS and as such results in a steeper past-current ST slope. Further, the present results suggest that temporal distance to the future is unrelated to one's current-future ST. It is possible that irrespective of how near or far individuals view their future lives from their past or present lives, they perceive multiple opportunities for changes and experiences into their future lives that become more positive with time. Indeed, according to cultural life script theory, young adults believe that their lives will comprise an increasingly number of increasingly positive life events, at least during younger adulthood (Rubin & Bernsten, 2003). As a result, it appears that young adults believe that their life *should* get more satisfying with time such that, regardless of distance to the future, they believe they will inevitably experience more opportunities for increasingly more satisfying life events and experiences (Shanahan & Busseri, 2016). To explore these notions, future studies could ask participants how many opportunities for change they have been presented with in their lives, and how different they view their past LS from their current LS (as opposed to asking the more general question concerning the similarity of their past and current lives – as was done to assess temporal overlap), and between their current LS and future LS.

With respect to temporal overlap, the present findings suggest that viewing the past as less related to the present, and the future more related is also associated with positive outcomes (i.e., steeper past-current ST and less steep current-future ST, respectively). These links support previous research suggesting that greater temporal overlap between the present and the future is associated with other positive outcomes such as better ethical judgements, greater willingness to invest in the future, and less

procrastination (Blouin-Hudon & Pychyl, 2015; Ersner-Hershfield et al., 2009; Hershfield et al., 2012). One possible explanation for the present findings is that individuals who view less overlap between their past and their present life view less continuity between from their past and their present lives. Such individuals may view less continuity from their past LS to their current LS, thus creating a steep past-current ST slope. Furthermore, individuals who view greater overlap between their present and their anticipated future life may view greater continuity between the temporal periods. Such individuals may thus view greater continuity from their current LS to their future LS, creating a more gradual current-future ST slope.

A second possible explanation may be provided by self-discrepancy theory (Busseri & Merrick, 2016; Higgins, 1989). Specifically, Busseri and Merrick (2016) found that individuals asked to evaluate their ideal future lives provided similar ratings of their anticipated future LS as individuals in a control condition (who simply evaluated their anticipated future LS). Thus, with respect to present findings, individuals may view their past life as greatly different from their ideal future life, and the less similar the present is to the past, the closer the present must be to their ideal life, creating a steeper past-current ST slope. However, the current study did not investigate mechanisms through which LS and STs may be linked with temporal overlap, and future research is needed to gain an understanding as to why these results were found. For example, future studies examining links with temporal overlap could ask individuals how different they perceive their past LS from their present LS, as well as asking individuals to describe what their ideal future life looks like compared to their life at present.

Implications for temporal perspective. With respect to temporal perspective (Lasane & O'Donnell, 2005), the present results provide further evidence that the temporal perspective constructs are unique from one another. That is, the different temporal perspective constructs have differing associations with the LS and ST scores. Nonetheless, the results also show similarities between temporal focus and temporal value with respect to their having similar links with LS and STs, offering additional support to the dual-aspect structure of temporal perspective previously mentioned, comprising temporal periods as distinct and the unions among temporal periods. Both aspects appear to be related to how individuals view their life unfolding over time. As noted above, however, future research is needed to explore further the internal structure of temporal perspective and the possibility of a dual-aspect structure.

The present results also suggest there is value to investigating both subjective and objective measures of temporal perspective. In particular, with respect to temporal distance, had only objective distance to the past been measured, the link between subjective distance to the past and current-future ST slope would not have been found. These results are consistent with prior research investigating the difference between objective and subjective temporal distance (Ross & Wilson, 2002), and suggest that in future studies examining temporal perspective, particularly temporal distance and temporal value, the assessment of both subjective and objective features would be beneficial.

Goal 4: Mindfulness, LS, and Temporal Perspective

The fourth goal of the present study was to examine whether the anticipated links between mindfulness and LS (including STs) were mediated by particular temporal

perspective components. First, it was hypothesized that greater mindfulness would predict greater temporal focus on the present, which would predict higher current LS, a steeply inclining past-current ST slope, and a less steeply inclining current-future ST slope. After accounting for temporal focus, it was predicted that the predictive link between mindfulness and LS, and between mindfulness and STs would be attenuated in magnitude and significance. These hypotheses were partially supported. Specifically, greater mindfulness predicted greater temporal focus of the present, which predicted higher current LS further, and the predictive link between mindfulness and current LS was fully mediated by temporal focus. Contrary to predictions, however, there was no association between mindfulness and either of the ST slopes (as discussed in Goal 1), and as such, no mediation model of this relation was tested. Thus, these mediation predictions were not supported.

Secondly, it was hypothesized that greater mindfulness would predict either greater temporal distance (past-current, current-future), which would then predict more steeply inclining past-current and current-future ST slopes, or greater mindfulness would predict less temporal distance (past-current, current-future), which would lead to less steeply inclining past-current and current-future ST slopes. After accounting for temporal distance, it was predicted that the predictive link between mindfulness and STs would be attenuated in magnitude and significance. As previously discussed, due to the lack of association between mindfulness and STs, the hypothesized mediation models were not viable and thus, not assessed. Consequently, these mediation predictions were not supported.

Thirdly, it was hypothesized that greater mindfulness would either predict greater temporal overlap (past-current, current-future), which would then lead to less steeply inclining past-current and current-future ST slopes, or greater mindfulness would predict less temporal overlap (past-current, current-future) which would then lead to more steeply inclining past-current and current-future ST slopes. After accounting for temporal overlap, it was hypothesized that the predictive link between mindfulness and STs would be attenuated in magnitude and significance. However, as the anticipated links between mindfulness and STs were not found, the hypothesized mediation model was not viable and thus not tested. Consequently, these hypotheses were not supported.

Lastly, it was hypothesized that greater mindfulness would predict greater temporal value of the present which would then lead to higher current LS, a more steeply inclining past-current ST, and a less steeply inclining current-future ST slope. After accounting for temporal value, it was hypothesized that the predictive link between mindfulness and LS, and STs would be attenuated in magnitude and significance. These predictions were partially supported. Specifically, greater Nonjudging predicted greater subjective temporal value of the present, which predicted higher current LS, such that the predictive link between Nonjudging and current LS was partially mediated. Contrary to the predictions, however, mindfulness was not associated with either past-current or current-future STs. Consequently, the mediation model was not viable and thus not tested. As such, the predictions pertaining to mediation involving the STs were not supported.

Implications for mindfulness. With respect to mindfulness theories, the present findings suggest that mindfulness is related to the temporal perspective constructs

pertaining to the temporal periods distinctly rather than the aspect of temporal perspective pertaining to the unions between two temporal periods (temporal distance and temporal overlap). More specifically, the only evidence of mediation was found via two temporal perspective constructs – temporal focus and temporal value – pertaining to the present temporal period.

The present findings suggest greater temporal focus on the present fully mediates the link between higher mindfulness (as assessed by the MAAS) and higher current LS. One possible explanation for this finding is that individuals higher in mindfulness may focus more on the current temporal period, which may lead them to become more aware of what is satisfying in their present life. This awareness may cause individuals to continue pursing actions that maintain their current LS, while also becoming aware of potential threats to their satisfaction and avoiding actions that detract from their current LS. The present study was not designed, however, to test any of these specific mechanisms. Rather, future research is needed to assess, for example, actions taken by individuals to maintain their LS and their awareness of potential threats to their LS.

The present findings also suggest that greater subjective temporal value of the present partially mediates the link between the FFMQ Nonjudging factor and higher current LS. One possibility for this findings is that individuals higher in Nonjudging may place less judgement on the negative aspects of one's current experiences, which leads them to value their present life more. This increased valuation may motivate individuals to put more effort into actions geared at achieving or maintaining a satisfying life. To test these speculations, future studies could measure individuals' judgment of specific positive and negative experiences, as well as their motivation (e.g., approach vs.

avoidance orientation; Elliot & Thrash, 2002). Further, future studies could seek to manipulate state motivation to assess the potential impact on personal effort directed toward one's life. In addition, given that the present study was correlational and cross-sectional, the temporal order of the links between mindfulness, LS, and temporal perspective is unknown. Future longitudinal and experimental research is thus needed to determine if mindfulness leads to differences in temporal focus and value (and ultimately LS), or if differences in temporal focus and value lead to varying levels of mindfulness.

The present findings also provide further insight into the conceptualization of mindfulness. Specifically, the link between the unidimensional conceptualization of mindfulness (Brown & Ryan, 2003) and current LS was fully mediated by current temporal focus, whereas the link between Nonjudging, one of the five factors from the multidimensional conceptualization of mindfulness (Baer et al., 2008), was partially mediated by current temporal value. As discussed above with respect to Goal 2 (mindfulness and temporal perspective), whereas the unidimensional mindfulness score was associated with greater current temporal focus but not associated with current temporal value, the Nonjudging component of mindfulness was associated with current temporal value but not associated with current temporal focus.

Accordingly, one possibility for these present mediation findings is that paying more attention and being more aware of the present moment (unidimensional conceptualization) only leads individuals to focus more on the present temporal period, without prompting other cognitive changes (e.g., appraisal, valuation). In contrast, not judging one's experiences (one factor of the multidimensional conceptualization) leads individuals to value their present temporal period more, without prompting greater focus

on the present moment. In addition, as suggested by the results concerning Goal 1 (mindfulness and LS), the Nonjudging component of mindfulness was a stronger predictor of current LS than was the Act with Awareness component (which overlaps highly with the unidimensional conceptualization); further, the association between Nonjudging and current LS was also stronger than the link between the MAAS score (representing the unidimensional conceptualization) and current LS. Accordingly, there was a stronger link to explain between Nonjudging and current LS, than between the MAAS and current LS.

Nonetheless, it remains to be seen whether the partial (as opposed to full) mediation between Nonjudging and current LS via current temporal value reflects the insufficient explanatory power of current temporal value and/or the superior predictive strength of the Nonjudging component of mindfulness. To further explore these notions, future research could investigate additional potential mediators of the link between Nonjudging and current LS, including mechanisms that pertain to the frequency, categorization, and evaluation of negative experiences (consistent with the content of the Nonjudging subscale), which were not assessed in the current study.

Implications for temporal perspective. The present findings support the prediction that temporal perspective may be a potential mediator of the relation between mindfulness and positive outcomes. In particular, the aspect of temporal perspective pertaining to the distinct temporal periods is a potential mechanism through which mindfulness is linked with positive outcomes (higher LS), rather than through the union of the temporal periods. However, the mediation evidence highlights just one temporal period: the present.

Importantly, although the mediation findings support previous research suggesting that mindfulness is 'about' the present temporal period (Brown & Ryan, 2003; Kabat-Zinn, 1994), it should be noted that the *hypotheses* concerning the link between mindfulness and current LS were limited to temporal perspective constructs pertaining to *only* the present temporal period. Stated differently, no hypotheses were made regarding possible mediators pertaining to the past and future temporal periods. Accordingly, the present results do not necessarily imply that the past and future temporal periods are irrelevant to mediating the predictive effects of mindfulness on current LS. Rather, an important next step for future research is to investigate the link between mindfulness and present positive outcomes as mediated by temporal perspective constructs from all three temporal periods.

Implications for LS and STs. The lack of association between mindfulness and STs suggests that perceived changes from one's past to current life, and from one's current to future life are unrelated to how mindful individuals are – whether mindfulness is conceptualized solely in terms of attention and awareness to the present moment, or in terms of five factors. As discussed above in relation to Goal 1, such findings may indicate that mindfulness is not related to beliefs concerning *changes* in well-being over time, but rather is related to evaluations of one's life at each distinct temporal period. Future research is needed to assess perceptions of change in one's LS in a different, and perhaps more direct, manner than via the STs. Nonetheless, the present findings suggest that mindfulness may not provide a source of how individuals view their lives as unfolding over time (paralleling the nonsignificant links observed between mindfulness and those aspects of temporal perspective pertaining to the unions among temporal periods),

rendering the mediation issue mute. Even so, mindfulness does provide some insights into how individuals evaluate their lives at each temporal period, consistent with the proposed temporally-expanded view of mindfulness.

Comparison Among LS Measurement Approaches

In the present study I assessed individuals' LS and STs using three approaches (TSWLS, unanchored LS ladders, anchored LS ladders). Of these approaches, the results presented in the main text were based on the multi-item TSWLS measure and results based on the other two approaches were presented as supplementary analyses. Correlations among these measures within each temporal period were moderate to strong in each case, suggesting substantial similarity among these approaches (see Table 3). Indeed, it appears that these three measures assess the same constructs, that is, individuals' evaluations of their past, current, and future LS. Furthermore, results concerning the four study goals were generally consistent across the three LS measurement approaches. Nonetheless, there were several notable differences, as discussed below.

Goal 1: Mindfulness and LS. Mindfulness was significantly positively associated with current LS based on the TSWLS as well as the unanchored and anchored LS ladders. However, whereas mindfulness was positively associated with past LS based on the TSWLS, mindfulness was not associated with past LS using the unanchored LS ladders, and negatively associated with past LS based on the anchored LS ladders. Further, mindfulness components were only positively associated with future LS based on the TSWLS and the anchored LS ladders, whereas mindfulness was significantly positively *and* negatively associated with future LS (depending on the component of

mindfulness examined) based on the unanchored LS ladders. In addition, mindfulness was not significantly associated with any of the ST slopes based on the TSWLS. In contrast, mindfulness was significantly positively associated with the past-current ST slope based on the anchored LS ladders (but not the unanchored ladders) and significantly negatively associated with the current-future ST slope based on the unanchored and anchored LS ladders. It appears, therefore, that links between mindfulness and LS and the STs were most robust when based on the anchored LS ladders, compared to the TSWLS and unanchored LS ladders.

Goal 2: Mindfulness and temporal perspective. Differences between LS measurement approaches were not relevant as this goal was concerned only with the association between mindfulness and temporal perspective.

Goal 3: Temporal perspective and LS. With respect to my predictions concerning temporal focus, the association between focus on the present and current LS did not differ across LS measurement approaches. Similarly, the association between focus on the present and past-current ST slope did not differ across LS measurement approaches. However, for the association between focus on the present and the current-future ST slope, the association was negative based on the TSWLS and anchored LS ladders, but not significant based on the unanchored LS ladders.

With respect to my predictions concerning temporal distance, results concerning past-current temporal distance in relation to past-current ST slope did not differ across LS measurement approaches. However, the association between past-current temporal distance and current-future ST slope was positive based on the TSWLS, but not significant based on the anchored and unanchored ladders. For results concerning current-

future temporal distance and past-current ST slope, the association was negative based on the TSWLS and the unanchored LS ladders but both positive and negative (for objective and subjective distance, respectively) based on the anchored ladders. Further, the association between current-future temporal distance and current-future ST slope was not significant based on the TSWLS and the unanchored LS ladders, but was negative based on the anchored ladders.

With respect to my predictions concerning temporal overlap, the association between past-current temporal overlap and past-current ST slope was negative based on the TSWLS and the unanchored LS ladders, but was not significant based on the anchored LS ladders. The association between past-current temporal overlap and current-future ST slope did not differ across LS measurement approaches. For results concerning current-future temporal overlap and past-current ST slope, the association did not differ across LS measurement approaches. Similarly, the association between current-future temporal overlap and current-future ST slope did not differ across LS measurement approaches.

Finally, with respect to my predictions concerning temporal value, results did not differ across LS measurement approaches.

In summary, with respect to the association between temporal perspective and LS and the STs, results were comparable across LS measurement approaches, particularly between the TSWLS and the unanchored LS ladders.

Goal 4: Mindfulness, temporal perspective, and LS. With respect to the mediation model involving mindfulness as measured by the MAAS and current LS, full mediation via temporal focus on the present was found based both on the TSWLS and the

anchored LS ladders. However, mediation was not tested using the unanchored LS ladders since the MAAS was not related to current LS based on the unanchored LS ladders. With respect to the mediation model involving mindfulness as measured by the FFMQ and current LS, no difference in the mediation results via present subjective temporal value was found across all three LS measurement approaches. Two additional mediation models were viable (and thus tested) based only on the anchored LS ladders, but not based on the TSWLS and unanchored LS ladders: (1) MAAS predicting past-current LS slope as mediated by current temporal focus and past objective temporal distance; and (2) MAAS predicting current-future ST slope as mediated by current temporal focus. It appears, therefore, that because links between mindfulness and LS (and the ST slopes) were most robust based on the anchored LS ladders, more mediation models were viable using this approach, compared to the other two approaches.

Implications. Together, these findings indicate that associations with mindfulness were more plentiful when LS and the ST slopes were assessed based on the anchored LS ladders, compared to the TSWLS and unanchored LS ladders. This may have occurred because the anchored LS ladder approach constrains individuals to evaluate their lives across temporal periods based on a prespecified (and fixed) amount of time (i.e., in the present study, five years). In contrast, the TSWLS and the unanchored ladders provide no guidance or suggestion to participants concerning the length of time into the past or the future they should be considering when evaluating their recollected past and anticipated future lives. My results concerning temporal distance indicated that participants varied with respect to how far into the past and the future they envisioned when evaluating their lives without a temporal anchor (*M* objective distances of 8.41 and 6.03, respectively, as

shown in Table 1). Accordingly, the temporal distances participants were envisioning when completing the anchored LS ladders (i.e., five years) was less, on average, than the distances they were envisioning when completing the other two LS measures.

On the one hand, these findings suggest that researchers interested only (or primarily) in the link between mindfulness and individuals' views concerning how their lives are unfolding over time could benefit from measuring LS and the ST slopes based on an anchored approach. On the other hand, a fixed temporal anchor of five years may fall short of the temporal distances that participants would consider to be their past and future lives. In the present work, I focused on the results based on the multi-item TSWLS, which was not anchored, given my interest in assessing individual differences in temporal distance as a component of temporal perspective. My findings demonstrate that future researchers should carefully consider which LS measurement approach would be most appropriate given their research goals.

General Limitations

Research design. Given that no previous research had examined the associations between mindfulness, temporal perspective, and LS, the present correlational and cross-sectional design provided useful information concerning these relations of interest. However, an important limitation of this design choice is that the current findings do not allow for conclusions regarding temporal order or causality, which would have required longitudinal or experimental designs. Past research using longitudinal designs has found that mindfulness predicts positive outcomes over time, such as less stress and anxiety, and lower depressive levels (e.g., Call et al., 2015; Williams et al., 2010). Future research examining mindfulness from a temporal perspective could investigate how changes in

levels of mindfulness predict changes in temporal perspective, and further, how such changes predict LS over time. Indeed, with at least three waves of assessment in a longitudinal design, it would be possible to test the hypothesized mediational model. Further, research employing experimental designs has found that manipulating mindfulness can lead to more positive outcomes such increased self-compassion and decreased number of medical symptoms (Shapiro, Brown, & Biegal, 2007; Williams et al., 2001). Future experimental studies could investigate the effect of manipulated mindfulness on temporal perspective and LS, as well as manipulate temporal perspective (e.g., focus on or valuing of the present temporal period) to evaluate the effect on LS. Together, such experimental manipulations would provide valuable information concerning the implied causal flow of the hypothesized mediational model.

Participant sample. The current participants were all American adults that who recruited online. It is possible, therefore, that the present results may not be generalizable beyond this demographic. For example, recent studies have found some drawbacks to MTurk populations, such as high attrition rates, which may impact the generalizability of the current study compared to traditional face to face participation (Zhou & Fishbach, 2016). And yet other research has found that participants in MTurk studies tend to be more attentive, diverse and older, compared to non-MTurk samples (Casler, Bickel, & Hackett, 2013; Hauser & Schwarz, 2016). It is not clear how such differences may have impacted the present results. For example, participants were drawn from an individualistic culture and past research has shown differences in mindfulness between individualistic and collectivistic countries (e.g., Christopher, Charoensuk, Gilbert, Neary,

& Pearce, 2009). Thus, the present findings may not hold true for participants from a collectivistic culture.

Further, the current study called for participants between the ages of 18 and 40 years, in order to focus the investigation on individuals among whom the belief that life gets better and better over time is typical (Ross & Newby-Clark. 1998). Indeed, some research has suggested that mindfulness varies systematically by age (e.g., Prakash, Witmoyer, Aldao, & Schirda, 2015), in addition to other studies that have found age-related differences in temporal perspective (e.g., Zimbardo & Boyd, 1999) and the typical slope in individuals' STs (e.g., Busseri, 2012). Thus, the present results may only apply to younger adults, and may not inform the relations among mindfulness, temporal perspective, and LS among middle-aged and older adults. As such, future research is needed to replicate and extend the present findings using a more culturally diverse sample encompassing a wider age range.

Another consideration is that although the current study did ask participants about their meditation experience, in the analyses I did not examine similarities or differences between naïve and experienced meditators. Some previous research on mindfulness suggest that the psychological significance of mindfulness may differ between naïve and experienced mediators (e.g., Grossman, 2008; Moore & Malinowski, 2009). Thus, it is unclear whether the present findings apply to both groups of individuals. Further, the present study did not distinguish between various forms of meditation. Future research is needed, therefore, to examine the links among mindfulness, temporal perspective, and life satisfaction within a sample of experienced practitioners in comparison to a sample of naïve meditators.

Research measures. To assess mindfulness, the present study employed the two most widely-used and researched self-report measures (Medvedev, Siegert, Feng, Billington, Jang, Krageloh, 2015; Qu, Dasborough, & Todorova, 2015): the MAAS (Brown & Ryan, 2003) and FFMQ (Baer et al., 2008). Together, these measures allowed me to examine both a unidimensional (one factor) and multidimensional (five factors) conceptualization of mindfulness. However, findings concerning the unique predictive role of the Nonjudging factor in relation to LS support an alternative two-factor conceptualizations of mindfulness, comprising both attention/awareness and acceptance factors (Bergomi, Tschacher, & Kupper, 2013). Future studies examining mindfulness in relation to temporal perspective and LS may benefit from including a measure of this bidimensional conceptualization (e.g., Cardaciotto & Hebert, 2005), or focusing the analyses on just the two corresponding factors assessed by the FFMQ (i.e., Act with Awareness, Nonjudging).

With respect to measuring temporal perspective, we selected four components (focus, distance, overlap, and value) identified in previous research examining how individuals think about their past, present, and future lives (e.g. Bluedorn, 2002; Caruso et al., 2008; Mello & Worrell, 2007). However, the present study did not investigate the internal structure of temporal perspective. Consequently, as discussed above, it is unclear how the different temporal perspective constructs fit together (e.g., one aspect pertaining to the distinct temporal periods and another aspect pertaining to their unions). Further, there are other aspects of temporal perspective that were not assessed in the present study, such as individuals' attitudes toward the past, present, and future (Cole, Andretta, & McKay, 2016; Mello & Worrell, 2007; Zimbardo & Boyd, 1999). Future research

could also include measures of constructs pertaining to particular temporal periods (e.g., emotional valence, vividness, realism; Knepple Carney, & Patrick, 2017). Inclusion of such measures in future research may provide useful understanding of the links between mindfulness, temporal perspective, and LS, as well as more nuanced insights concerning the internal structure of temporal perspective.

The assessment of LS and STs was based on the multi-item TSWLS measure (Pavot et al., 2008). Given the nonsignificant links between mindfulness and the STs that were derived from individuals' ratings of their past, current, and anticipated future LS, it may be that an alternative approach to measuring how individuals view their lives as unfolding over time may be required. For example, future studies could expand on the present work by assessing such beliefs directly using measures of perceived change (e.g., single-item measures pertaining to individuals' views concerning how their LS has changed since the past, and how it will change into the future), rather than indirectly through deriving the ST scores based on LS ratings from three separate subjective temporal periods. More generally, the current research used LS as the only indicator of well-being. Although LS is considered to be one of the primary components of subjective well-being (Busseri & Sadava, 2011; Diener, 1984), future research could investigate additional facets of hedonic (e.g., positive and negative affect; e.g., Diener et al., 2010) and eudaimonic well-being (e.g., autonomy, personal growth, purpose in life; Ryff, 1989) to gain a broader understanding of the link between mindfulness and positive functioning.

Statistical testing. The present study did not make any corrections for the number of analyses conducted and thus, the family-wise error rate exceeded the 0.05 level. As a result, some of the associations identified as statistically significance in the present

analyses may not have been statistically significant had a more conservative approach (e.g., Bonferroni correction) been applied.

Implications and Conclusion

With respect to the structure of mindfulness, the present study suggests that of the various components of mindfulness, both the attention/awareness component (as assessed by the MAAS) and the nonjudging component (as assessed by the FFMQ) show the most consistent relations with the various other constructs examined in this thesis, including LS and temporal perspective. Such results are consistent with a two-factor conceptualization of mindfulness, comprising attention/awareness and acceptance (Bergomi, Tschacher, & Kupper, 2013). As such, it may be beneficial for future researchers to employ a mindfulness measure that includes both of these components, such as the FFMQ (Baer et al., 2008) or the Philadelphia Mindfulness Scale (Cardaciotto & Hebert, 2005). Further, the present results suggest that educators and practitioners of mindfulness could highlight the nonjudging component of mindfulness in their applications of mindfulness, given its link with positive outcomes (Kabat-Zinn, 1990; Teper & Inzlicht, 2012).

With regards to temporal perspective, the present findings suggest that temporal perspective may have two key aspects: one aspect that pertains to the *distinct* temporal periods (subjective past, present, and future), as assessed by temporal focus and value; and a second aspect that pertains to the *unions* of the temporal periods (past-current, current-future, past-future), as assessed by temporal distance and overlap. Accordingly, future researchers studying temporal perspective may find it beneficial to investigate this two-aspect structure to temporal perspective through, for example, studying multiple

components of temporal perspective within the same study and simultaneously in relation to other constructs of interest (Knepple, Carney, & Patrick, 2017).

The present findings also suggest that the link between mindfulness and positive outcomes such as current LS may be (at least partially) explained by components of temporal perspective that pertain to temporal periods distinctly, particularly temporal focus and temporal value of the present. That is, temporal perspective may provide a mechanism through which mindfulness is predictive of positive outcomes such as well-being evaluations. Future researchers could thus consider studying temporal perspective and its various components as intervening processes through which other temporally-oriented constructs (e.g., emotional valence, vividness, hope, motivation) predict positive functioning more generally.

Finally, through examining mindfulness from a temporally-expanded perspective, the present study suggests that mindfulness is more than just a present oriented construct. Rather, mindfulness was related to all three temporal periods. More specifically, the results suggest that mindfulness may not inform individuals' perceptions of the passage of time in one's life (as reflected in those aspects of temporal perspective pertaining to temporal unions), but may instead be linked with perceptions concerning the past, present, and future as distinct temporal periods. These results suggest that it may be profitable to seek to understand mindfulness as pertaining to all three temporal periods, rather than only in terms of the present. Indeed, using this approach, unique insights may be developed with respect to theoretical conceptualizations of mindfulness, its empirical relations to other variables of interest, and its practical applications.

In conclusion, the present study has provided new insights into several important issues, including: the significant components of mindfulness, the structure of temporal perspective, the potential role of temporal perspective as a mediator, and the when of mindfulness (i.e., links between mindfulness and the various temporal periods). Together, these insights provide a foundation for understanding mindfulness from a temporally-expanded perspective, encompassing how individuals think about their past, present, and future lives.

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Supplementary Analyses and Results

Mediation Results including Covariates

Results based on MAAS and TSWLS. Steps previous are discussed in the main text. As an additional check on the robustness of the finding that temporal focus fully mediated the link between mindfulness and current LS, I ran another hierarchical regression model in which current LS was regressed onto MAAS at Step 1, with current temporal focus added at Step 2, and rumination and emotion dysregulation (note that, as discussed in the Introduction, these two variables have been commonly examined as mediating factors in mindfulness research) added at Step 3. As shown in Table 14, at Step 3 both rumination and emotional dysregulation were significant negative predictors of current LS. (Note that MAAS scores were significant negatively correlated with both rumination and emotion dysregulation, *r*s = -0.46 and -0.51, *p*s < .001, respectively; further current temporal focus was also negatively correlated with rumination and emotional dysregulation, *r*s = -0.35 and -0.39, *p*s < .001, respectively). Nonetheless, current temporal focus remained a significant predictor of current LS even after controlling for the predictive effects of rumination and emotional dysregulation. This finding provides further support for my predictions regarding the role of temporal perspective in mediating the link between mindfulness and LS.

Results based on FFMQ and TSWLS. Steps previous are discussed in the main text. As an additional check on the robustness of the finding that temporal value partially mediated the link between Nonjudging and current LS, I ran another hierarchical regression model in which current LS was regressed onto Nonjudging at Step 1, with present subjective value added at Step 2, and rumination and emotion dysregulation

added at Step 3. As shown in Table 15, at Step 3, rumination (but not emotional dysregulation) significantly and negatively predicted current LS. However, present subjective value remained a significant unique predictor of current LS at Step 3 even after controlling for the predictive effects of rumination and emotional dysregulation. (Note that Nonjudging scores were significant negatively correlated with both rumination and emotion dysregulation, *r*s = -0.57 and -0.71, *p*s < .001, respectively; further present subjective temporal values was also negatively correlated with rumination and emotional dysregulation, *r*s = -0.16 and -0.30, *p*s = .002 and < .001, respectively). These findings provide additional support for my prediction regarding the unique role of temporal perspective in (at least partially) mediating the link between mindfulness and LS.

Results based on MAAS and LS Ladders

Mindfulness and life satisfaction. My first goal was to evaluate the relations between mindfulness and LS and the ST slopes. I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). As shown in Table 16, MAAS scores were not significantly correlated with any LS rating. I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope. Results indicated that MAAS scores were significantly negatively correlated with current-future ST slopes, but were not significantly correlated with past-current and past-future ST slopes.

Together, these findings do not support my predictions concerning past, current, or future LS. Further, these findings do not support my prediction concerning past-current

ST slope, but are consistent with my predictions concerning current-future and past-future ST slope.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. Predictions and results are presented in the main text (see also Table 5).

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables (including the ST slopes). Pairwise correlations between each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are shown in Table 17.

Temporal focus. I anticipated that a greater focus on the current temporal period would predict higher current LS, greater incline in the slope of past-current ST, and less incline in the slope of the current-future ST. As seen in Table 17, current focus was significantly positively correlated with current LS and past-current ST slope, but was not significantly correlated with current-future ST slope.

Temporal distance. I predicted that less temporal distance from present to past and present to anticipated future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past objective distance was significantly positively correlated with past-current ST slope, but was not significantly correlated with current-future ST slope. Past subjective distance was not significantly correlated with either ST slope. Future objective distance was not significantly correlated with the ST slopes. Future subjective distance was significantly negatively correlated with past-current ST slopes, but was not significantly correlated with current-future ST slopes.

Temporal overlap. I predicted that greater temporal overlap from present to past and present to future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past-current temporal overlap was significantly negatively correlated with past-current ST slope, but was not significantly correlated with current-future ST slope. Further, current-future overlap was significantly positively correlated with past-current ST slope and significantly negatively correlated with current-future ST slope.

Temporal value. I predicted that greater valuation of the present would be related to higher current LS and more steeply inclining STs between the recollected past and current temporal periods, and less steeply inclining STs between the current and anticipated future temporal periods. Present subjective value was significantly positively correlated with current LS and past-current ST slope, and was significantly negatively correlated with current-future ST slope. Present monetary value scores were significantly positively correlated with current LS and past-current ST slope, and significantly negatively correlated with current-future ST slopes.

Thus, these findings provide full support for my hypotheses concerning temporal value, and partial support for my hypotheses concerning temporal focus, temporal distance, and temporal overlap.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. Note that, as shown in Table 16, of the relevant LS variables, MAAS scores were significantly correlated only with current-future ST slope.

Furthermore, as shown in Table 17 of the relevant temporal perspective mediators for the relation between mindfulness and current-future ST slope (i.e. current temporal focus, temporal distance, temporal overlap, present subjective and monetary temporal value), only current-future temporal overlap and present subjective and monetary temporal value were significantly correlated with past-current ST slope. However, MAAS scores were not correlated with any of these possible mediators (as reported in the main text; see Table 5). Thus, no mediation model was analyzed.

Mediation results including covariates. Because there was no mediation model analyzed, no mediational model with covariates was analyzed.

Results based on FFMQ and LS Ladders

Mindfulness and life satisfaction. My first goal was to evaluate the relation between mindfulness, LS, and STs. I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope.

With respect to the pairwise correlational results, as shown in Table 18, Observe scores were not significantly correlated with any LS rating or ST slope score. Describe scores were not significantly correlated recollected past LS; were significantly positively correlated with current LS, anticipated future LS, and past-current ST slope; and were not significantly correlated with current-future or past- future ST slopes. Act with Awareness scores were not significantly correlated with recollected past LS, were significantly positively correlated with current LS, but were not significantly correlated with

anticipated future LS; were not significantly correlated with past-current ST slope, were significantly negatively associated with current-future ST slope, but were not significantly correlated with past-future ST slope. Nonjudging scores were significantly positively correlated with recollected past LS, current LS, and anticipated future LS; were not significantly correlated with past-current ST slope, were significantly negatively correlated with current-future ST slope, but were not significantly correlated with past-future ST slope. Finally, Nonreacting scores were not significantly correlated with recollected past LS, were significantly positively correlated with current LS, but were not significantly correlated with anticipated future LS or any of the ST slopes.

With respect to the regression results, as shown in Table 19, mindfulness was not predictive of recollected past LS, but was predictive of current and anticipated future LS. Specifically, in regression models predicting current and future LS, unique and positive predictive effects were found for the Nonjudging scores, along with Describe (for anticipated future LS only) and Act with Awareness scores (for anticipated future LS only). In contrast, mindfulness was not significantly predictive with any of the ST slope scores. That is, none of the five FFMQ scores were uniquely predictive of any of the ST slope scores. Together, these findings provide partial support for the hypothesized positive predictive effect of mindfulness on ratings of recollected past (not supported), current, and anticipate future LS – particularly with respect to the Nonjudging factor of mindfulness. In contrast, these findings provide no support for the hypothesized predictive effects of mindfulness on the past-current and current-future ST slopes, but full support for the hypothesized non-significant predictive effect of mindfulness on the past-future ST slope.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. Predictions and results are presented in the main text (see also Table 10 and Table 11).

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables and ST slopes. Pairwise correlations between each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are described above in the MAAS and Ladder LS section and are shown in Table 17. As noted above, the findings provide full support for my hypotheses concerning temporal value, and partial support for my hypotheses concerning temporal focus, temporal distance and temporal overlap.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. Note that, as shown in Table 19, of the relevant LS variables, FFMQ scores were significantly predictive of only current LS; more specifically, Nonjudging scores were uniquely predictive of current LS. Furthermore, as shown in Table 11, of the relevant hypothesized temporal perspective mediators for the relation between mindfulness (FFMQ scores) and current LS (i.e. current temporal focus, present subjective and monetary temporal value), Nonjudging scores were uniquely predictive of only present subjective temporal value. Thus, mediation was examined only with respect to the association between Nonjudging scores and current LS, as mediated by present subjective temporal value.

I anticipated that after accounting for present subjective temporal value, the link between mindfulness and current LS would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher Nonjudging scores would predict greater subjective value of the present, which would lead to higher current LS. As shown in Table 20, at Step 1 of the regression model, Nonjudging scores had a significant positive predictive effect on current LS, which was reduced in magnitude at Step 2. At Step 2, Nonjudging scores had a smaller unique predictive effect on current LS, and in addition present subjective temporal value had a unique positive predictive effect on current LS. That is, at Step 2, higher current LS was predicted by higher Nonjudging scores and greater subjective valuing of the present. (Further, the indirect effect of Nonjudging on current LS was statistically significant; p = .001.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in (at least partially) mediating the link between mindfulness and LS.

Mediation results including covariates. As an additional check on the robustness of the finding that subjective temporal value partially mediated the link between Nonjudging and current LS, I ran another hierarchical regression model in which current LS was regressed onto Nonjudging at Step 1, with present subjective value added at Step 2, and rumination and emotion dysregulation added at Step 3. As shown in Table 21, at Step 3, rumination (but not emotional dysregulation) significantly and negatively predicted current LS. However, present subjective value remained a significant unique predictor of current LS at Step 3 even after controlling for the predictive effects of rumination and emotional dysregulation. In addition, Nonjudging was no longer a

significant unique predictor of current LS at Step 3. (Note that Nonjudging scores were significantly negatively correlated with both rumination and emotion dysregulation, *r*s = -.57 and -.71, *p*s < .001, respectively; further present subjective temporal values was also negatively correlated with rumination and emotional dysregulation, *r*s = -.16 and -.30, *p*s = .002 and < .001, respectively). These findings provide additional support for my prediction regarding the unique role of temporal perspective in (at least partially) mediating the link between mindfulness and LS.

Results based on MAAS and Anchored LS Ladders

Mindfulness and life satisfaction. My first goal was to evaluate the relation between mindfulness, LS, and STs. I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). As shown in Table 22, MAAS scores were significantly negatively correlated with recollected past LS, significantly positively correlated with current LS, but were not significantly correlated with anticipated future LS scores. I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope. Results indicated that MAAS scores were significantly positive correlated with past-current ST slopes, significantly negatively correlated with current-future ST slopes, and not significantly correlate with past-future ST slopes.

Together, these findings support my predictions concerning current LS, but do not support my predictions concerning past, and future LS. Further, these findings fully support my prediction concerning past-current, current-future, and past-future ST slopes.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. Predictions and results are presented in the main text (see also Table 5).

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables (including the ST slopes). Pairwise correlations between each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are shown in Table 23.

Temporal focus. I anticipated that a greater focus on the current temporal period would predict higher current LS, greater incline in the slope of past-current ST, and less incline in the slope of the current-future ST. As seen in Table 23, current focus was significantly positively correlated with current LS and past-current ST slope, and was significantly negatively correlated with current-future ST slope.

Temporal distance. I predicted that less temporal distance from present to past and present to anticipated future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past objective distance was significantly positively correlated with past-current ST slope, but was not significantly correlated with current-future ST slope. Past subjective distance was not significantly correlated with either ST slope. Future objective distance was significantly positively correlated with past-current ST slopes and was significantly negatively correlated with current-future ST slopes. Future subjective distance was significantly negatively correlated with past-current ST slopes, but was not significantly correlated with current-future ST slopes.

Temporal overlap. I predicted that greater temporal overlap from present to past and present to future would be related to a more gradual incline in the STs (past-current, current-future slopes). Past-current temporal overlap was not significantly correlated with any ST slope. Current-future overlap was significantly positively correlated with past-current ST slope and significantly negatively correlated with current-future ST slope.

Temporal value. I predicted that greater valuation of the present would be related to higher current LS and more steeply inclining STs between the recollected past and current temporal periods, and less steeply inclining STs between the current and anticipated future temporal periods. Present subjective value was significantly positively correlated with current LS and past-current ST slope, and was significantly negatively correlated with current-future ST slope. Present monetary value scores were significantly positively correlated with current LS and past-current ST slope, and significantly negatively correlated with current-future ST slopes.

Thus, these findings provide full support for my hypotheses concerning temporal focus and temporal value, and partial support for my hypotheses concerning temporal distance and temporal overlap.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. Note that, as shown in Table 22, MAAS scores were significantly associated with all three relevant LS scores (current LS, past-current, and current-future ST slopes). With respect to current LS, as shown in Table 5, of the relevant temporal perspective mediators for the relation between mindfulness and current LS (i.e.

current temporal focus, present subjective and monetary temporal value), MAAS scores were only correlated with current temporal focus. And as shown in Table 23, current temporal focus was positively correlated with current LS. Thus, mediation was examined with respect to the association between MAAS scores and current LS, as mediated by current temporal focus. With respect to past-current ST slopes, as shown in Table 5, of the relevant temporal perspective mediators for the relation between mindfulness and past-current ST slope (current temporal focus, temporal distance, temporal overlap, present subjective and monetary temporal value), MAAS scores were correlated with current temporal focus and past objective distance. And as shown in Table 23, both current temporal focus and past objective distance were positively correlated with the past-current ST slope. Thus, mediation was examined with respect to the association between MAAS scores and past-current ST slope, as mediated by current temporal focus and past objective temporal distance. With respect to the current-future ST slopes, of the relevant temporal perspective mediators for the relation between mindfulness and current-future ST slope (current temporal focus, temporal distance, temporal overlap, present subjective and monetary temporal value), MAAS scores were correlated with current temporal focus and past objective distance. And as shown in Table 23, current temporal focus (but not past objective distance) was significantly correlated with the current-future ST slope. Thus, mediation was examined with respect to the association between MAAS scores and current-future ST slope, as mediated by current temporal focus.

With respect to the link between mindfulness and current LS, I anticipated that after accounting for current temporal focus, the association between mindfulness and

current LS would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher MAAS scores would predict greater focus on the present, which would lead to higher current LS. As shown in Table 24, at Step 1 of the regression model, MAAS scores had a significant positive predictive effect on current LS, which was reduced in magnitude and statistical significance at Step 2. At Step 2, MAAS scores no longer had a unique predictive effect on current LS; rather, current temporal focus had a unique positive predictive effect on current LS. That is, at Step 2, higher current LS was predicted only by greater focus on the present. (Further, the indirect effect of MAAS on current LS was statistically significant; $p = .002$.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in mediating the link between mindfulness and LS.

Further, with respect to the link between mindfulness and the past-current ST slope, I anticipated that after accounting for current temporal focus and past objective temporal distance, the association between mindfulness and past-current ST slope would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher MAAS scores would predict greater focus on the present and greater past objective distance, which would lead to more steeply inclining past-current ST slopes. As shown in Table 25, at Step 1 of the regression model, MAAS scores had a significant positive predictive effect on past-current ST slope, which was reduced in magnitude and statistical significance at Step 2. At Step 2, MAAS scores no longer had a unique predictive effect on past-current ST slopes; rather, current temporal focus and past objective temporal distance each had unique positive predictive effects on past-current ST slopes. That is, at Step 2, higher past-current ST slope was predicted by

greater focus on the present and greater objective distance to the past. (Further, the indirect effect of MAAS on past-current ST slope was statistically significant; $p = .001$.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in mediating the link between mindfulness and LS.

With respect to the link between mindfulness and the current-future ST slope, I anticipated that after accounting for current temporal focus, the link between mindfulness and current-future ST slope would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher MAAS scores would predict greater focus on the present, which would lead to less steeply inclining current-future ST slopes. As shown in Table 26, at Step 1 of the regression model, MAAS scores had a significant negative predictive effect on current-future ST slope, which was reduced in magnitude and statistical significance at Step 2. At Step 2, MAAS scores no longer had a unique predictive effect on current-future ST slopes; rather, current temporal focus had a unique positive predictive effect on current-future ST slopes. That is, at Step 2, less steeply inclining current-future ST slopes was predicted by greater focus on the present. (Further, the indirect effect of MAAS on current-future ST was statistically significant; $p = .008$.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in mediating the link between mindfulness and LS.

Mediation results including covariates. As an additional check on the robustness of the mediation finding that temporal focus fully mediated the link between mindfulness and current LS, I ran another hierarchical regression model in which current LS was regressed onto MAAS at Step 1, with current temporal focus added at Step 2, and

rumination and emotion dysregulation added at Step 3. As shown in Table 27, at Step 3 rumination was a significant negative predictor of current LS. (Note that MAAS scores were significant negatively correlated with both rumination and emotion dysregulation, *r*s = -.46 and -.51, *p*s < .001, respectively; current temporal focus was also negatively correlated with rumination and emotional dysregulation, *r*s = -.35 and -.39, *p*s < .001, respectively). In addition, current temporal focus remained a significant predictor of current LS at Step 3, even after controlling for the predictive effects of rumination and emotional dysregulation. These findings provide further support for my predictions regarding the role of temporal perspective in mediating the link between mindfulness and LS.

As an additional check on the robustness of the mediation finding that current temporal focus and objective temporal distance to the past mediated the link between mindfulness and past-current ST slope, I ran another hierarchical regression model in which past-current ST slope was regressed onto MAAS at Step 1, with current temporal focus and objective temporal distance to the past added at Step 2, and rumination and emotion dysregulation added at Step 3. As shown in Table 28, at Step 3 rumination and emotional dysregulation were not significant predictors of past-current ST slope. [Note that MAAS scores were significant negatively correlated with both rumination and emotion dysregulation (*r*s = -.46 and -.51, *p*s < .001, respectively); current temporal focus was also negatively correlated with rumination and emotional dysregulation (*r*s = -.35 and -.39, *p*s < .001, respectively); and objective temporal distance to the past was positively correlated with rumination ($r = .01$, $p = .425$) and negatively correlated with emotion dysregulation ($r = -.20$, $p < .001$)]. Further, current temporal focus and objective

temporal distance to the past both remained unique significant predictors of past-current ST slope at Step 3, even after controlling for the predictive effects of rumination and emotional dysregulation. These findings provides further support for my predictions regarding the role of temporal perspective in mediating the link between mindfulness and LS.

As an additional check on the robustness of the mediation finding that temporal focus fully mediated the link between mindfulness and current-future ST slope, I ran another hierarchical regression model in which current-future ST slope was regressed onto MAAS at Step 1, with current temporal focus added at Step 2, and rumination and emotion dysregulation added at Step 3. As shown in Table 29, at Step 3 rumination and emotional dysregulation were not significant predictors of current-future ST slope. Further, current temporal focus remained a significant predictor of current-future ST slopes at Step 3, even after controlling for the predictive effects of rumination and emotional dysregulation. This finding provides further support for my prediction regarding the role of temporal perspective in mediating the link between mindfulness and LS.

Results based of FFMQ and Anchored LS Ladders

Mindfulness and life satisfaction. My first goal was to evaluate the relation between mindfulness, LS, and STs. I predicted that greater mindfulness would be associated with higher LS at each temporal period (particularly current LS). I further predicted that mindfulness would be positively correlated with more steeply inclining past-current ST slopes and less steeply inclining (i.e., more gradual) current-future ST slopes, but would not be related to the past-future ST slope.

With respect to the pairwise correlational results, as shown in Table 30, Observe scores were not significantly correlated with any LS rating or ST slope score. Describe scores were significantly correlated only with current LS. Act with Awareness scores were significantly correlated with current LS, present-current ST slope, and current-future ST slope. Nonjudging scores were significantly positive correlated with current and anticipated future LS, were positively correlated with past-current ST slope, and negatively correlated with current-future ST slope. Finally, Nonreacting scores were significantly correlated only with current LS.

With respect to the regression results, as shown in Table 31, mindfulness was predictive of past, current, and anticipated future LS. Specifically, a unique and negative predictive effect for Act with Awareness on past LS was found, and unique and positive predictive effects were found for the Nonjudging scores on current and future LS. In contrast, mindfulness was not significantly predictive with any of the ST slope scores. That is, none of the five FFMQ factor scores were uniquely predictive of any of the ST slope scores.

Together, these findings provide full support for the hypothesized positive predictive effect of mindfulness on ratings of recollected past, current, and anticipate future LS – particularly with respect to the Nonjudging factor of mindfulness. In contrast, these findings provide no support for the hypothesized predictive effects of mindfulness on the past-current and current-future ST slopes, but full support for the hypothesized non-significant predictive effect of mindfulness on the past-future ST slope.

Mindfulness and temporal perspective. My second goal was to determine if there was a relation between mindfulness and the four temporal perspective components. Predictions and results are presented in the main text. (See also Table 10 and Table 11.)

Temporal perspective and life satisfaction. My third goal was to evaluate the relations between the four temporal perspective constructs and the LS variables and ST slopes. Pairwise correlations between each temporal perspective variable and LS rating, as well as between each temporal perspective variable and ST slope scores are described above in the FFMQ and Anchored Ladder LS section and are shown in Table 23. As noted above, the findings provide full support for my hypotheses concerning temporal focus and temporal value, and partial support for my hypotheses concerning temporal distance and temporal overlap.

Mindfulness, temporal perspective, and life satisfaction. My fourth goal was to examine whether the anticipated links between mindfulness and current LS, as well as between mindfulness and two of the ST slopes (past-current, current-future), were mediated by temporal perspective. As shown in Table 31, of the relevant LS variables, FFMQ scores were significantly predictive of only current LS; more specifically, Nonjudging scores (only) were uniquely predictive of current LS. Furthermore, as shown in Table 11, of the relevant hypothesized temporal perspective mediators for the relation between mindfulness and current LS (i.e. current temporal focus, present subjective and monetary temporal value), Nonjudging scores were uniquely predictive of only present subjective temporal value. Thus, mediation was examined only with respect to the association between Nonjudging scores and current LS, as mediated by present subjective temporal value.

I anticipated that after accounting for present subjective temporal value, the link between mindfulness and current LS would be attenuated in magnitude and significance, if not rendered fully non-significant. More specifically, I anticipated that higher Nonjudging scores would predict greater subjective value of the present, which would lead to higher current LS. As shown in Table 32, at Step 1 of the regression model, Nonjudging scores had a significant positive predictive effect on current LS, which was reduced in magnitude at Step 2. At Step 2, Nonjudging scores had a smaller unique predictive effect on current LS; in addition, present subjective temporal value had a unique positive predictive effect on current LS. That is, at Step 2, higher current LS was predicted by higher Nonjudging scores and greater subjective valuing of the present. (Further, the indirect effect of Nonjudging on current LS was statistically significant; p = .001.) Together, these findings provide full support for my hypothesis concerning the role of temporal perspective in (at least partially) mediating the link between mindfulness and LS.

Mediation results including covariates. As an additional check on the robustness of the finding that subjective temporal value (partially) mediated the link between Nonjudging and current LS, I ran another hierarchical regression model in which current LS was regressed onto Nonjudging at Step 1, with present subjective value added at Step 2, and rumination and emotion dysregulation added at Step 3. As shown in Table 33, at Step 3, the effect of Nonjudging was no longer significant. Further, rumination (but not emotional dysregulation) significantly and negatively predicted current LS. In addition, present subjective value remained a significant unique predictor of current LS at Step 3, even after controlling for the predictive effects of rumination and emotional

dysregulation. These findings provide additional support for my prediction regarding the unique role of temporal perspective in (partially) mediating the link between mindfulness and LS.

Tables

Table 1. *Descriptive Statistics for Study Variables*

Variables	*M*	*SD*	Scale min.	Scale max.	Observed min.	Observed max.	Skew	Kurt
Mindfulness								
MAAS	4.18	1.03	1	6	1.07	6.00	-0.25	-0.27
FFMQ-Observe	3.51	0.82	1	5	1.00	5.00	-0.16	-0.27
FFMQ-Describe	3.18	0.75	1	5	1.00	5.00	-0.22	0.29
FFMQ-Awareness	3.59	0.90	1	5	1.25	5.00	-0.22	-0.61
FFMQ-Nonjudging	3.43	0.95	1	5	1.00	5.00	-0.14	-0.50
FFMQ-Nonreacting	3.04	0.75	1	5	1.00	5.00	-0.11	0.46
LS								
TSWLS- Past (P)	3.61	1.52	1	7	1.00	7.00	-0.09	-1.04
TSWLS- Current (C)	4.21	1.63	1	7	1.00	7.00	-0.36	-0.79
TSWLS- Future (F)	4.80	1.32	1	7	1.00	7.00	-0.59	0.20
TSWLS-P-C slope	0.61	1.76	-6	6	-5.00	5.00	0.05	0.39
TSWLS-C-F slope	0.58	1.26	-6	6	-2.20	5.80	1.09	1.73
TSWLS-P-F slope	1.19	1.66	-6	6	-5.00	6.00	0.30	0.23
Ladder-Past	5.11	2.40	0	10	0	10	-0.08	-0.74
Ladder-Current	6.24	2.33	0	10	0	10	-0.51	-0.29
Ladder-Future	8.17	1.90	0	10	0	10	-1.56	2.63
Ladder P-C slope	1.13	3.15	-10	10	-8	10	-0.07	-0.03
Ladder C-F slope	1.93	2.02	-10	10	-4	9	-0.41	-0.03
Ladder P-F slope	3.07	2.95	-10	10	-6	10	-0.10	-0.23
Anc Ladder-Past	5.33	2.42	0	10	0	10	-0.07	-0.68
Anc Ladder-Current	6.32	2.27	0	10	0	10	-0.54	-0.26
Anc Ladder-Future	8.21	1.81	0	10	0	10	-1.65	2.89
Anc Ladder-P-C slope	0.99	3.08	-10	10	-10	10	-0.28	0.35
Anc Ladder-C-F slope	1.89	2.04	-10	10	-5	10	0.39	1.16
Anc Ladder-P-F slope	2.88	2.99	-10	10	-6	10	-0.10	0.09
Temporal Perspective								
TFS-Past	4.16	1.24	1	7	1.25	7.00	0.24	-0.75
TFS-Present	4.84	0.98	1	7	2.25	7.00	0.03	-0.22
TFS-Future	4.89	1.08	1	7	2.00	7.00	-0.26	-0.20
TD-Past-Objective	8.41	6.33	0	40	0.00	34.00	1.14	1.68
TD-Past-Subjective	6.54	1.95	1	9	1.00	9.00	-0.69	0.02
TD-Future-Objective	6.03	5.90	0	40	0.00	40.00	2.33	7.46
TD-Future-Subjective	5.86	1.93	1	9	1.00	9.00	-0.26	-0.43
TO-Past/Current	3.71	2.16	0	10	0.00	10.00	0.17	-0.53
TO-Current/Future	5.24	2.16	0	10	0.00	10.00	-0.45	-0.28
TO-Past/Future	2.87	2.36	0	10	0.00	10.00	0.64	-0.39
TV-Past-Subjective	4.46	1.71	1	7	1.00	7.00	-0.25	-0.97
TV-Past-Monetary	1.06	1.12	0	-	0.00	3.00	0.58	-1.10
TV-Present-Subjective	5.65	1.43	1	7	1.00	7.00	-1.14	0.73
TV-Present-Monetary	1.38	1.11	0	-	0.00	3.00	0.17	-1.30
TV-Future-Subjective	6.13	1.07	1	7	1.00	7.00	-1.44	2.17
TV-Future-Monetary	1.25	1.13	0	-	0.00	3.00	0.29	-1.30
Additional Measures								
Rumination	3.11	0.93	1	5	1.00	5.00	-.04	-.42
Emotion regulation	2.25	0.70	1	5	1.00	4.44	.29	-.70

Note. N = 305. MAAS = Mindful Attention Awareness Scale; FFMQ = Five Factor Mindfulness Questionnaire; LS = life satisfaction; TSWLS = Temporal Satisfaction With Life Scale; Anc = Anchored; TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 2. *Correlations Among Mindfulness Measures*

Variable	1	2	3	4	5	6
1. MAAS	--					
2. FFMQ- Describe	.40*	--				
3. FFMQ- Observe	.16*	.14*	--			
4. FFMQ- AWA	.71*	.44*	.03	--		
5. FFMQ- Nonjudging	.46*	.32*	-.17*	.60*	--	
6. FFMQ- Nonreacting	.24*	.21*	.33*	.15*	.18*	--

Note. $N = 305$. MAAS = Mindful Attention Awareness Scale. FFMQ = Five Factor Mindfulness Questionnaire. AWA = Act with Awareness. *$p < .05$.

Table 3. *Correlations Among LS Measures*

Variable	1	2	3	4	5	6	7	8	9
TSWLS									
1. Past	--								
2. Current	.37*	--							
3. Future	.32*	.66*	--						
Unanchored LS Ladder									
4. Past	.64*	.11*	.11	--					
5. Current	.20*	.75*	.55*	.12*	--				
6. Future	.13*	.44*	.67*	.08	.56*	--			
Anchored LS Ladder									
7. Past	.42*	.19*	.14*	.55*	.17*	.09	--		
8. Current	.21*	.77*	.53*	.07	.84*	.46*	.14*	--	
9. Future	.09	.41*	.58*	.04	.48*	.76*	.02	.52*	--

Note. $N = 305$. LS = Life Satisfaction. TSWLS = Temporal Satisfaction With Life Scale. $*p < .05$

Table 4. *Correlations between Mindfulness (MAAS) and LS (TSWLS)*

LS variables	*r*	*p*
TSWLS-Past	.09	.121
TSWLS-Current	.16	.005
TSWLS-Future	.17	.003
TSWLS P-C slope	.07	.211
TSWLS C-F slope	-.03	.619
TSWLS P-F slope	.05	.345

Note. N = 305. MAAS = Mindfulness Attention Awareness Scale. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. P = past. C = current. F = future.

Table 5. *Correlations between Mindfulness (MAAS) and Temporal Perspective*

Temporal perspective variables	*r*	*p*
Temporal Focus		
TFS-Past	-.26	<.001
TFS-Current	.28	<.001
TFS-Future	-.07	.216
Temporal Distance		
TD-Past-Objective	.14	.012
TD-Past-Subjective	.03	.600
TD-Future-Objective	.10	.096
TD-Future-Subjective	-.10	.093
Temporal Overlap		
TO-Past/Current	.02	.698
TO-Current/Future	.08	.184
TO-Past/Future	-.01	.931
Temporal Value		
TV-Past-Subjective	-.06	.291
TV-Past-Monetary	-.18	.002
TV-Present-Subjective	.07	.243
TV-Present-Monetary	-.07	.236
TV-Future-Subjective	.05	.347
TV-Future-Monetary	-.10	.075

Note. N = 305. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 6. *Correlations between LS (TSWLS) and Temporal Perspective*

	LS Ratings						ST Slopes					
	Past		Current		Future		Past-Current		Current-Future		Past-Future	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Temporal Focus												
TFS-Past	-.02	.708	-.32	<.001	-.22	<.001	-.28	<.001	.18	.002	-.16	.006
TFS-Current	.17	.003	.30	<.001	.23	<.001	.13	.020	-.15	.008	.03	.637
TFS-Future	.03	.629	.07	.211	.30	<.001	.04	.459	.22	<.001	.21	<.001
Temporal Distance												
TD-Past-Objective	-.14	.018	.07	.183	.07	.214	.19	<.001	-.02	.677	.18	.002
TD-Past-Subjective	-.11	.068	-.03	.668	.13	.024	.07	.240	.17	.003	.20	<.001
TD-Future-Objective	-.02	.793	.08	.164	<.01	.960	.09	.130	-.10	.080	.02	.780
TD-Future-Subjective	-.02	.726	-.19	.001	-.16	.005	-.16	.006	.07	.206	-.11	.054
Temporal Overlap												
TO-Past/Current	.17	.004	-.07	.199	-.07	.248	-.21	<.001	.03	.656	-.20	<.001
TO-Current/Future	.04	.524	.38	<.001	.12	.032	.32	<.001	-.36	<.001	.06	.263
TO-Past/Future	.28	<.001	-.03	.622	-.12	.037	-.27	<.001	-.09	.119	-.35	<.001
Temporal Value												
TV-Past-Subjective	.33	<.001	-.10	.096	-.10	.090	-.37	<.001	.02	.709	-.38	<.001
TV-Past-Monetary	.16	.005	-.20	<.001	-.20	<.001	-.33	<.001	.05	.396	-.31	<.001
TV-Present-Subjective	.05	.383	.54	<.001	.42	<.001	.46	<.001	-.26	<.001	.29	<.001
TV-Present-Monetary	.04	.523	.31	<.001	.21	<.001	.26	<.001	-.18	<.001	.13	.020
TV-Future-Subjective	-.05	.419	.05	.333	.28	<.001	.09	.111	.22	<.001	.26	<.001
TV-Future-Monetary	-.02	.716	-.26	<.001	-.03	.560	-.23	<.001	.31	<.001	-.01	.896

Note. N = 305. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 7. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (TSWLS)*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.25	.16	.005
Step 2			
MAAS	0.13	.08	.140
TFS-Current	0.46	.28	.017

Note. N = 305. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale.

Table 8. *Correlations between Mindfulness (FFMQ) and LS (TSWLS)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting	
LS variables	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
TSWLS-Past	-.01	.895	.05	.387	.05	.383	.18	.002	.13	.020
TSWLS-Current	-.06	.262	.20	<.001	.25	<.001	.36	<.001	.14	.013
TSWLS-Future	.05	.413	.23	<.001	.20	<.001	.32	<.001	.19	.001
TSWLS P-C slope	-.05	.356	.15	.011	.19	.001	.18	.001	.02	.781
TSWLS C-F slope	.13	.020	-.02	.710	-.11	.047	-.13	.020	.02	.718
TSWLS P-F slope	.04	.440	.14	.016	.12	.041	.09	.112	.03	.571

Note. *N* = 305. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. P = past. C = current. F = future.

Table 9. *Multiple Regression Analysis with Mindfulness (FFMQ) Predicting LS (TSWLS)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting			
LS variables	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	R^2	*p*
TSWLS-Past	-.01	.960	<.01	.994	-.10	.209	.21	.004	.11	.081	.05	.011
TSWLS-Current	-.05	.363	.09	.151	.03	.678	.29	<.001	.08	.161	.13	<.001
TSWLS-Future	.05	.432	.13	.038	-.05	.523	.30	<.001	.10	.080	.12	<.001
TSWLS P-C slope	-.05	.450	.08	.210	.11	.147	.09	.253	-.02	.776	.04	.008
TSWLS C-F slope	.12	.059	.02	.748	-.09	.253	-.07	.367	<.01	.969	.02	.061
TSWLS P-F slope	.04	.526	.10	.121	.05	.511	.04	.605	-.02	.789	.03	.187

Note. N = 305. Cell entries show the standardized regression coefficients from the regression of the row variable on the column variables. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. P = past. C = current. F = future.

Table 10. *Correlations between Mindfulness (FFMQ) and Temporal Perspective*

	Observe		Describe		Act with Awareness		Nonjudging		Nonreacting	
Temporal perspective variables	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Temporal Focus										
TFS-Past	.22	<.001	-.15	.010	-.37	<.001	-.45	<.001	-.03	.566
TFS-Current	.10	.076	.32	<.001	.33	<.001	.25	<.001	.30	<.001
TFS-Future	.16	.007	.12	.039	-.10	.096	-.16	.005	.16	.006
Temporal Distance										
TD-Past-Objective	-.01	.817	.12	.046	.16	.005	.10	.074	.07	.234
TD-Past-Subjective	.03	.637	.16	.005	.11	.067	.14	.013	.06	.335
TD-Future-Objective	.01	.954	.06	.284	.07	.229	.03	.588	.10	.079
TD-Future-Subjective	-.04	.516	-.06	.279	-.11	.057	-.14	.013	-.06	.334
Temporal Overlap										
TO-Past/Current	.01	.922	-.10	.086	-.06	.273	-.07	.204	-.07	.240
TO-Current/Future	-.05	.397	.01	.855	.14	.019	.15	.008	.06	.283
TO-Past/Future	-.02	.788	-.01	.864	-.04	.493	-.06	.285	-.01	.815
Temporal Value										
TV-Past-Subjective	.11	.065	.01	.946	-.06	.316	-.08	.158	-.03	.598
TV-Past-Monetary	-.04	.457	-.21	<.001	-.16	.005	-.15	.011	.04	.488
TV-Present-Subjective	-.04	.514	.17	.004	.16	.005	.23	<.001	.12	.032
TV-Present-Monetary	-.01	.808	.05	.399	.01	.934	.06	.319	.02	.732
TV-Future-Subjective	.04	.444	.21	<.001	.08	.190	.06	.327	.07	.197
TV-Future-Monetary	.05	.388	-.03	.561	-.12	.037	-.19	.001	.07	.249

Note. N = 305. FFMQ = Five Factor Mindfulness Questionnaire; TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 11. *Multiple Regression Analysis with Mindfulness (FFMQ) Predicting Temporal Perspective*

	Observe		Describe		Act with Awareness		Nonjudging		Nonreacting			
Temporal perspective variables	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	R^2	*p*
Temporal Focus												
TFS-Past	.18	.002	.02	.769	-.21	.002	-.30	<.001	-.01	.880	.25	<.001
TFS-Current	<.01	.949	.17	.004	.20	.004	.04	.594	.22	<.001	.20	<.001
TFS-Future	.05	.404	.18	.005	-.09	.223	-.18	.013	.15	.013	.09	<.001
Temporal Distance												
TD-Past-Objective	-.05	.468	.05	.418	.14	.062	-.02	.822	.05	.390	.03	.087
TD-Past-Subjective	.03	.629	.13	.046	-.03	.729	.12	.106	<.01	.996	.04	.049
TD-Future-Objective	-.05	.462	.03	.644	.07	.363	-.05	.525	.11	.088	.02	.438
TD-Future-Subjective	-.06	.364	<.01	.964	-.03	.737	-.14	.071	-.01	.898	.03	.184
Temporal Overlap												
TO-Past/Current	.03	.644	-.08	.218	<.01	.986	-.03	.682	-.05	.392	.01	.510
TO-Current/Future	-.05	.479	-.07	.277	.10	.176	.09	.216	.06	.350	.03	.073
TO-Past/Future	-.03	.613	.02	.782	-.01	.949	-.07	.351	.01	.909	.01	.919
Temporal Value												
TV-Past-Subjective	.12	.065	.03	.637	-.05	.535	-.03	.678	-.06	.320	.02	.307
TV-Past-Monetary	-.08	.227	-.18	.005	-.03	.645	-.10	.162	.13	.040	.07	.001
TV-Present-Subjective	-.05	.439	.10	.124	<.01	.979	.18	.015	.09	.166	.07	.001
TV-Present-Monetary	-.01	.896	.05	.427	-.07	.398	.08	.316	.01	.908	.01	.840
TV-Future-Subjective	<.01	.971	.22	.001	-.02	.771	-.01	.945	.03	.605	.05	.014
TV-Future-Monetary	-.03	.695	.02	.725	-.02	.755	-.21	.007	.11	.076	.05	.014

Note. N = 305. Cell entries show the standardized regression coefficients from the regression of the row variable on the column variables. FFMQ = Five Factor Mindfulness Questionnaire; TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 12. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (TSWLS)*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.62	.36	<.001
Step 2			
Nonjudging	0.43	.25	<.001
TV-Present-Subjective	0.55	.48	<.001

Note. N = 305. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. TV = Temporal Value.

Table 13. *Summary of Research Goals, Hypotheses, and Results (TSWLS)*

Goal	Hypothesis	Result
1. Mindfulness and LS	*Greater mindfulness correlated with*	
	higher past LS	Supported
	higher current LS	Supported
	higher future LS	Supported
	steeper P-C ST slope	Not supported
	more gradual C-F ST slope	Not supported
	no correlation with P-F ST slope	Supported
2. Mindfulness and temporal perspective	*Greater mindfulness correlated with*	
	less focus on past	Supported
	more focus on present	Supported
	less focus on future	Not supported
	more or less distance to past	Supported (more distance)
	more or less distance to future	Not supported
	more or less P-C overlap	Not supported
	more or less C-F overlap	Not supported
	less value on past	Supported
	more value on present	Supported
	less value on future	Not supported

Note. TSWLS = Temporal Satisfaction With Life Scale. LS = life satisfaction. P = past. C = current. F = future. ST = subjective trajectory.

Table 13. *Summary of Research Goals, Hypotheses, and Results (TSWLS) – continued.*

Goal	Hypothesis	Result
3. Temporal perspective and LS	*Greater focus on the present correlated with*	
	Higher current LS	Supported
	Steeper past-current ST	Supported
	Less steep current-future ST	Supported
	Less distance to the past correlated with	
	Less steep past-current ST	Supported
	Less distance to the future correlated with	
	Less steep present-future ST	Not supported
	Greater overlap between the past and current correlated with	
	More gradual past-current ST	Supported
	Greater overlap between the current and future correlated with	
	More gradual current-future ST	Supported
	Greater value on the present correlated with	
	Higher current LS	Supported
	Steeper past-current ST slope	Supported
	Less steep current-future ST slope	Supported

Note. TSWLS = Temporal Satisfaction With Life Scale. LS = life satisfaction. P = past. C = current. F = future. ST = subjective trajectory.

Table 13. *Summary of Research Goals, Hypotheses, and Results (TSWLS) – continued*

Goal	Hypothesis	Result
4. Mindfulness, Temporal Perspective & LS/ST	*Greater temporal focus on the present mediates the link between*	
	Mindfulness and current LS	Supported (fully)
	Mindfulness and PC ST slope	Not supported
	Mindfulness and CF ST slop	Not supported
	Temporal distance to the past mediates the link between	
	Mindfulness and PC ST slope	Not supported
	Temporal distance to the future mediates the link between	
	Mindfulness and CF ST slope	Not supported
	Temporal overlap between the past and present mediates the link between	
	Mindfulness and PC ST slope	Not supported
	Temporal overlap between the future and present mediates the link between	
	Mindfulness and CF ST slope	Not supported
	Greater temporal value on the present mediates the link between	
	Mindfulness and current LS	Supported (partial)
	Mindfulness and PC ST slope	Not supported
	Mindfulness and CF ST slop	Not supported

Note. TSWLS = Temporal Satisfaction With Life Scale. LS = life satisfaction. P = past. C = current. F = future. ST = subjective trajectory.

Table 14. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (TSWLS) with Covariates*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.25	.16	.005
Step 2			
MAAS	0.13	.08	.140
TFS-Current	0.46	.28	.017
Step 3			
MAAS	-0.14	-.09	.157
TFS-Current	0.29	.17	.003
Rumination	-0.49	-.28	<.001
Emotion Dysregulation	-0.35	-.15	.037

Note. N = 305. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale.

Table 15. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (TSWLS) with Covariates*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.62	.36	<.001
Step 2			
Nonjudging	0.43	.25	<.001
TV-Present-Subjective	0.55	.48	<.001
Step 3			
Nonjudging	0.26	.15	.020
TV-Present-Subjective	0.56	.49	<.001
Rumination	-0.47	-.27	<.001
Emotion Dysregulation	0.19	.08	.241

Note. N = 305. LS = life satisfaction. TSWLS = Temporal Satisfaction With Life Scale. TV = Temporal Value.

Table 16. *Correlations between Mindfulness (MAAS) and LS (Ladders)*

LS variables	*r*	*p*
Ladder-Past	-.03	.613
Ladder -Current	.11	.051
Ladder -Future	.01	.857
Ladder P-C slope	.11	.067
Ladder C-F slope	-.12	.037
Ladder P-F slope	.03	.597

Note. N = 305. MAAS = Mindfulness Attention Awareness Scale. LS = life satisfaction. P = past. C = current. F = future.

Table 17. *Correlations between LS (Ladders) and Temporal Perspective*

	LS Ratings						ST Slopes					
	Past		Current		Future		Past-Current		Current-Future		Past-Future	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Temporal Focus												
TFS-Past	.03	.582	-.24	<.001	-.16	.018	-.20	<.001	.15	.011	-.11	.049
TFS-Current	-.04	.486	.23	<.001	.17	.003	.20	<.001	-.11	.056	.14	.014
TFS-Future	-.04	.468	.12	.039	.35	<.001	.12	.037	.20	.001	.26	<.001
Temporal Distance												
TD-Past-Objective	-.13	.028	.09	.104	.07	.198	.17	.004	-.04	.508	.15	.009
TD-Past-Subjective	.01	.888	.04	.514	.14	.012	.02	.708	.09	.107	.09	.133
TD-Future-Objective	-.02	.672	.12	.033	.06	.331	.11	.057	-.09	.122	.06	.332
TD-Future-Subjective	.03	.556	-.18	.001	-.11	.048	-.16	.005	.10	.070	-.10	.080
Temporal Overlap												
TO-Past/Current	.12	.041	-.05	.372	-.12	.045	-.13	.026	-.05	.395	-.17	.003
TO-Current/Future	-.01	.829	.34	<.001	.05	.355	.26	<.001	-.35	<.001	.04	.441
TO-Past/Future	.26	<.001	-.08	.147	-.17	.003	-.26	<.001	-.06	.272	-.32	<.001
Temporal Value												
TV-Past-Subjective	.41	<.001	-.15	.010	-.09	.125	-.43	<.001	.09	.126	-.40	<.001
TV-Past-Monetary	.23	<.001	-.19	.001	-.17	.003	-.31	<.001	.06	.286	-.29	<.001
TV-Present-Subjective	-.05	.433	.53	<.001	.44	<.001	.42	<.001	-.19	.001	.32	<.001
TV-Present-Monetary	-.01	.956	.31	<.001	.17	.003	.23	<.001	-.19	.001	.11	.048
TV-Future-Subjective	-.07	.199	.09	.102	.38	<.001	.13	.028	.25	<.001	.31	<.001
TV-Future-Monetary	.01	.821	-.18	.001	-.03	.627	-.14	.012	.18	.001	-.03	.619

Note. N = 305. LS = life satisfaction. TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 18. *Correlations between Mindfulness (FFMQ) and LS (Ladders)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting	
LS variables	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Ladder-Past	-.07	.253	.01	.852	.06	.316	.14	.017	.05	.363
Ladder -Current	-.02	.712	.17	.003	.16	.005	.27	<.001	.15	.008
Ladder -Future	.01	.866	.17	.002	.06	.289	.20	.001	.11	.051
Ladder P-C slope	.04	.548	.12	.042	.07	.201	.10	.099	.07	.206
Ladder C-F slope	.03	.559	-.03	.593	-.16	.028	-.13	.027	-.07	.222
Ladder P-F slope	.06	.298	.10	.072	-.01	.893	.01	.802	.03	.609

Note. *N* = 305. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. P = past. C = current. F = future.

Table 19. *Multiple Regression Analysis with Mindfulness (FFMQ) Predicting LS (Ladders)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting			
LS variables	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	R^2	*p*
Ladder-Past	-.06	.390	-.03	-.439	-.02	.811	.14	.071	.05	.391	.02	.204
Ladder -Current	-.03	.684	.06	.148	-.04	.584	.24	.001	.10	.090	.09	<.001
Ladder -Future	.01	.821	.16	.016	-.15	.039	.23	.002	.06	.362	.07	.001
Ladder P-C slope	.02	.714	.09	.172	-.02	.835	.07	.334	.04	.579	.02	.314
Ladder C-F slope	.04	.509	.04	.538	-.10	.197	-.06	.419	-.07	.293	.03	.181
Ladder P-F slope	.05	.401	.12	.061	-.08	.270	.04	.632	-.01	.899	.02	.403

Note. N = 305. Cell entries show the standardized regression coefficients from the regression of the row variable on the column variables. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. P = past. C = current. F = future.

Table 20. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Ladders)*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.66	.27	<.001
Step 2			
Nonjudging	0.38	.15	.002
TV-Present-Subjective	0.80	.49	<.001

Note. N = 305. LS = life satisfaction. TV = Temporal Value.

Table 21. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Ladders) with Covariates*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.66	.27	<.001
Step 2			
Nonjudging	0.38	.15	.002
TV-Present-Subjective	0.80	.49	<.001
Step 3			
Nonjudging	0.05	.02	.750
TV-Present-Subjective	0.79	.49	<.001
Rumination	-0.64	-.26	<.001
Emotional Dysregulation	0.06	.02	.808

Note. N = 305. LS = life satisfaction. TV = Temporal Value.

Table 22. *Correlations between Mindfulness (MAAS) and LS (Anc Ladders)*

LS variables	*r*	*p*
Anc Ladder-Past	-.13	.028
Anc Ladder -Current	.11	.049
Anc Ladder -Future	-.03	.604
Anc Ladder P-C slope	.18	.001
Anc Ladder C-F slope	-.15	.008
Anc Ladder P-F slope	.08	.144

Note. N = 305. MAAS = Mindfulness Attention Awareness Scale. LS = life satisfaction. Anc = Anchored. P = past. C = current. F = future.

Table 23. *Correlations between LS (Anc Ladders) and Temporal Perspective*

	LS Ratings						ST Slopes					
	Past		Current		Future		Past-Current		Current-Future		Past-Future	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Temporal Focus												
TFS-Past	.08	.194	-.22	<.001	-.09	.125	-.22	<.001	.17	.004	-.11	.047
TFS-Current	-.07	.226	.29	<.001	.15	.008	.27	<.001	-.19	.001	.15	.010
TFS-Future	-.04	.454	.10	.084	.37	<.001	.11	.062	.21	<.001	.26	<.001
Temporal Distance												
TD-Past-Objective	-.07	.220	.12	.036	.03	.604	.14	.012	-.11	.061	.08	.191
TD-Past-Subjective	.04	.447	-.02	.672	.02	.780	-.05	.363	.04	.472	-.03	.655
TD-Future-Objective	-.04	.478	.11	.046	-.03	.630	.12	.043	-.15	.008	.02	.777
TD-Future-Subjective	.05	.398	-.16	.007	-.14	.017	-.15	.008	.52	.366	-.12	.033
Temporal Overlap												
TO-Past/Current	.07	.206	-.06	.340	-.16	.045	-.10	.089	-.04	.480	-.13	.025
TO-Current/Future	-.04	.533	.36	<.001	.10	.097	.30	<.001	-.32	<.001	.09	.131
TO-Past/Future	.21	<.001	-.12	.039	-.18	.002	-.25	<.001	-.03	.680	-.28	<.001
Temporal Value												
TV-Past-Subjective	.25	<.001	-.13	.022	-.04	.446	-.30	<.001	.11	.061	-.23	<.001
TV-Past-Monetary	.15	.009	-.22	<.001	-.14	.017	-.28	<.001	.13	.029	-.20	<.001
TV-Present-Subjective	-.01	.806	.57	<.001	.44	<.001	.43	<.001	-.24	<.001	.28	<.001
TV-Present-Monetary	.10	.083	.29	<.001	.15	.008	.14	.016	-.19	.001	.01	.840
TV-Future-Subjective	-.11	.068	.06	.291	.44	<.001	.13	.027	.32	<.001	.35	<.001
TV-Future-Monetary	.03	.630	-.22	<.001	.03	.654	-.18	.001	.27	<.001	-.01	.905

Note. N = 305. LS = life satisfaction. Anc = Anchored. TFS = Temporal Focus Scale; TD = Temporal Distance; TO = Temporal Overlap; TV = Temporal Value.

Table 24. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Anc Ladders)*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.25	.11	.049
Step 2			
MAAS	0.08	.04	.521
TFS-Current	0.64	.28	<.001

Note. N = 305. LS = life satisfaction. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale.

Table 25. *Results from Hierarchical Multiple Regression Analysis Predicting Past-Current Slope (Anc Ladders)*

	Past-Current Slope		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.54	.18	.001
Step 2			
MAAS	0.31	.10	.075
TFS-Current	0.72	.23	<.001
TD-Past-Obj	0.06	.11	.043

Note. N = 305. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale; TD = Temporal Distance; Obj = objective.

Table 25. *Results from Hierarchical Multiple Regression Analysis Predicting Current-Future Slope (Anc Ladders)*

	Current-Future Slope		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	-0.30	-.15	.008
Step 2			
MAAS	-0.22	-.11	.063
TFS-Current	-0.33	-.16	.008

Note. N = 305. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale. TFS = Temporal Focus Scale

Table 26. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Anc Ladders) with Covariates*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.25	.11	.049
Step 2			
MAAS	0.08	.04	.521
TFS-Current	0.64	.28	<.001
Step 3			
MAAS	-0.21	-.10	.132
TFS-Current	0.45	.20	.001
Rumination	-0.59	-.24	.001
Emotion Dysregulation	-0.30	-.09	.204

Note. N = 305. LS = life satisfaction. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale.

Table 27. *Results from Hierarchical Multiple Regression Analysis Predicting Past-Current Slope (Anc Ladders) with Covariates*

	Past-Current Slope		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	0.54	.18	.001
Step 2			
MAAS	0.31	.10	.075
TFS-Current	0.72	.23	<.001
TD-Past-Obj	0.06	.11	.043
Step 3			
MAAS	0.18	.06	.357
TFS-Current	0.64	.20	.001
TD-Past-Obj	0.06	.12	.041
Rumination	-0.28	-.08	.248
Emotion Dysregulation	-0.09	-.02	.780

Note. N = 305. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale; TD = Temporal Distance; Obj = objective.

Table 28. *Results from Hierarchical Multiple Regression Analysis Predicting Current-Future Slope (Anc Ladders) with Covariates*

	Current-Future Slope		
Predictors	*b*	*β*	*p*
Step 1			
MAAS	-0.30	-.15	.008
Step 2			
MAAS	-0.22	-.11	.063
TFS-Current	-0.33	-.16	.008
Step 3			
MAAS	-0.13	-.06	.344
TFS-Current	-0.27	-.13	.040
Rumination	0.18	.08	.257
Emotion Dysregulation	0.09	.03	.680

Note. N = 305. Anc = Anchored. MAAS = Mindfulness Attention Awareness Scale; TFS = Temporal Focus Scale.

Table 29. *Correlations between Mindfulness (FFMQ) and LS (Anc Ladders)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting	
LS variables	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Anc Ladder-Past	-.08	.141	-.01	.890	-.08	.192	.04	.474	.01	.889
Anc Ladder -Current	-.03	.577	.14	.015	.17	.003	.25	<.001	.13	.029
Anc Ladder -Future	.01	.970	.10	.070	.04	.478	.13	.020	.09	.131
Anc Ladder P-C slope	.04	.458	.11	.057	.19	.001	.15	.009	.09	.135
Anc Ladder C-F slope	.04	.513	-.06	.274	-.16	.007	-.16	.006	-.06	.279
Anc Ladder P-F slope	.07	.225	.07	.228	.09	.137	.05	.413	.05	.424

Note. *N* = 305. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. Anc = Anchored. P = past. C = current. F = future.

Table 30. *Multiple Regression Analysis with Mindfulness (FFMQ) Predicting LS (Anc Ladders)*

	Observe		Describe		Act w Awareness		Nonjudging		Nonreacting			
LS variables	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*	R^2	*p*
Anc Ladder-Past	-.08	.236	.03	.639	-.15	.046	.10	.170	.03	.626	.02	.242
Anc Ladder -Current	-.04	.577	.06	.384	.02	.812	.20	.008	.09	.162	.07	<.001
Anc Ladder -Future	.01	.977	.09	.186	-.10	.198	.15	.042	.06	.385	.03	.101
Anc Ladder P-C slope	.03	.592	.02	.795	.13	.079	.06	.399	.04	.529	.04	.028
Anc Ladder C-F slope	.04	.526	.01	.824	-.11	.162	-.08	.276	-.05	.451	.03	.075
Anc Ladder P-F slope	.03	.331	.03	.678	.06	.400	.01	.904	.01	.897	.01	.579

Note. N = 305. Cell entries show the standardized regression coefficients from the regression of the row variable on the column variables. FFMQ = Five Factor Mindfulness Questionnaire. LS = life satisfaction. Anc = Anchored. P = past. C = current. F = future.

Table 31. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Anc Ladders)*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.59	.25	<.001
Step 2			
Nonjudging	0.29	.12	.013
TV-Present-Subjective	0.86	.54	<.001

Note. N = 305. LS = life satisfaction. Anc = Anchored. TV = Temporal Value.

Table 32. *Results from Hierarchical Multiple Regression Analysis Predicting Current LS (Anc Ladders) with Covariates*

	LS Current		
Predictors	*b*	*β*	*p*
Step 1			
Nonjudging	0.59	.25	<.001
Step 2			
Nonjudging	0.29	.12	.013
TV-Present-Subjective	0.86	.54	<.001
Step 3			
Nonjudging	0.06	.03	.704
TV-Present-Subjective	0.87	.55	<.001
Rumination	-0.64	-.26	<.001
Emotional Dysregulation	0.26	.08	.266

Note. N = 305. LS = life satisfaction. Anc = Anchored. TV = Temporal Value.

Figures

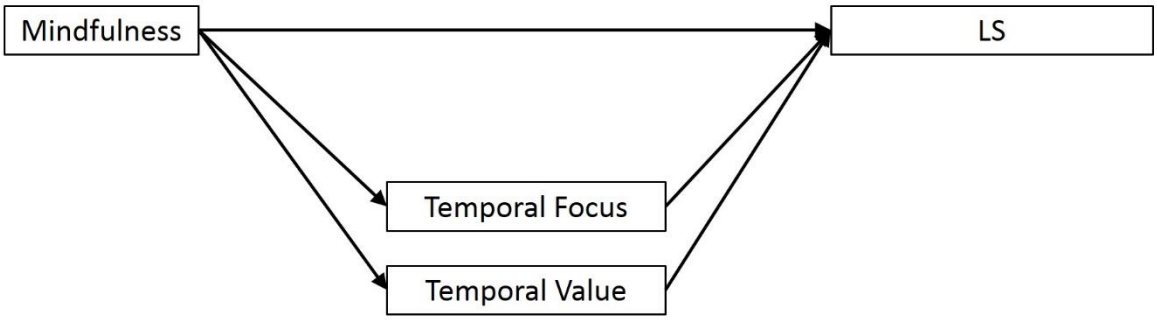


Figure 1. Hypothesized mediation model linking mindfulness, temporal perspective, and life satisfaction (LS).

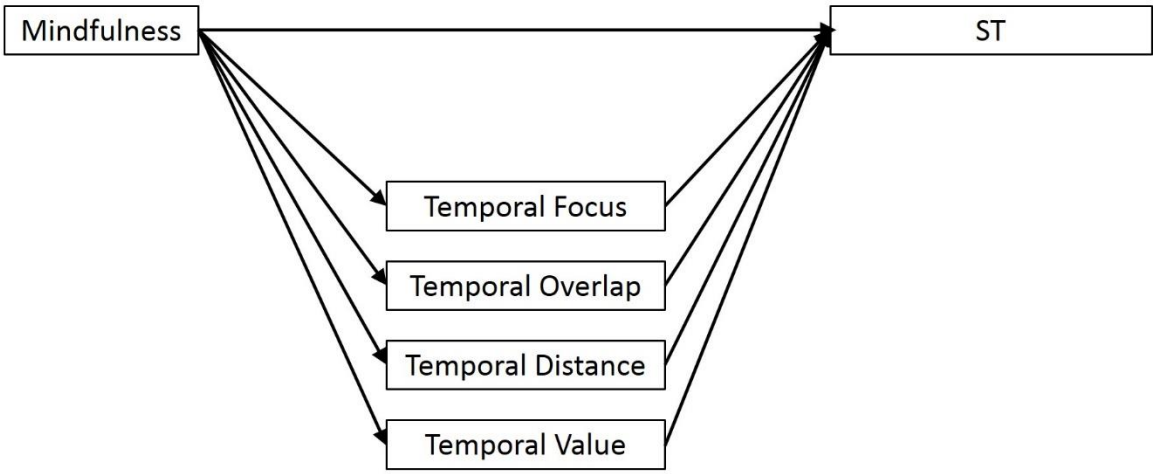


Figure 2. Hypothesized mediation model linking mindfulness, temporal perspective, and subjective life satisfaction trajectories (ST).

APPENDIXES

APPENDIX A

MTurk Advertisement

Beliefs about Life (Past, Present, and Future) Questionnaire

Looking for people between the ages of 18 and 40, whose first language is English and who live in the United States. Participants will be asked to answer several questions about their opinions, beliefs, and emotions about their past, present, and anticipated future life. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit for taking our survey.

Takes about 30 minutes.

Compensation of $1.50 USD upon completion.

Survey link: {survey link will go here}

Provide the survey code here:

APPENDIX B

Informed Consent Statement

Date: March 2016-June 2016
Project Title: Belief about Life (Past, Present, Future) Questionnaire

Principal Investigator:
Dr. Michael Busseri, Associate Professor
Department of Psychology
Brock University, Ontario, Canada
mbusseri@brocku.ca

Principal Student Investigator:
Mojan Naisani Samani, MA student
Department of Psychology
Brock University, Ontario, Canada
mn14sk@brocku.ca

INVITATION: You are being invited to participate in an on-line research study. The general purpose of this research is to examine how individuals view their life to be unfolding over time.

WHAT'S INVOLVED: As a participant, you will be asked to rate several statements related to your opinions, beliefs, and emotions about your past, present, and anticipated life using an on-line survey. Participation will take approximately 20-30 minutes.

POTENTIAL BENEFITS AND RISKS: The information from this study will contribute to our understanding of how individuals perceive and evaluate their lives. Additional possible benefits of participation include the $1.50USD compensation, and gaining self-knowledge related to one's life (past, present, future) as well as how psychology research is conducted. There also may be some minimal risk associated with participation as some of the questions may foster some discomfort for some individuals. Please note that such discomfort is expected to be no more than that encountered in one's daily life.

CONFIDENTIALITY: All information you provide is confidential. Further, once you complete and submit the questionnaire, your responses will be anonymous; that is, your name will not be included with your responses to the questionnaire or in any other way associated with the data collected in the study. Although Amazon Mechanical Turk may store data about you (i.e. that you completed this HIT), this information will not be linked to your responses to this survey. There will be no way for anyone to link your name to your questionnaire responses. Furthermore, because our interest is in the average responses of the entire group of participants, your responses will not be identified individually in any way in written reports of this research. Data collected during this study will be stored indefinitely on a password-protected computer in the Well-Being

Research Lab in the Department of Psychology at Brock University. Access to the dataset will be restricted to Dr. Michael Busseri and his research students at Brock University.

VOLUNTARY PARTICIPATION: Your participation in this study is voluntary; you may decline to participate at any time without consequences to yourself. You have the right to omit any question(s) you choose; that is, you may simply not respond to a questionnaire item for the questions you do not wish to answer. Further, if you decide to withdraw from the study before you have submitted the questionnaire by selecting "withdraw" on the final page, your questionnaire will be deleted. Please note that once you submit the questionnaire by selecting the "submit" button on the final page, your responses will become anonymous; therefore, it will not be possible to remove your data should you wish to withdraw after you have submitted your responses.

PUBLICATION OF RESULTS: The results from this study may be used in journal articles, presentations, or books. A summary of the results of this research study will be available approximately one year from now; participants who wish to receive information about the findings of this study at that time can email mbusseri@brocku.ca or mn14sk@brocku.ca.

CONTACT INFORMATION AND ETHICS CLEARANCE: If you have questions at any time about the study or the procedures you may contact any of the researchers. This project has been reviewed and received ethics clearance through the Office of Research Ethics Board (File # 15-265) at Brock University (Canada). If you have any pertinent questions regarding your rights as a participant, please contact the Research Ethics Officer at reb@brocku.ca, 905-688-5550 ext. 3035.

Thank you for your assistance with this project. If you like, you can print off a copy of this page for your records.

CONSENT
Please check off one of the boxed below:

☐ **I agree to participate in this study** described above. I have made this decision based on the information I have read in this Information Consent Letter. I have the opportunity to receive additional details and ask further questions by contacting the researchers or the Brock University Research Ethics Office. I understand that I may withdraw this consent at any time by simply exiting the questionnaire before I click on the "submit" button on the final page of the questionnaire.

☐ **I do not want to participate in this study** and wish to exit the questionnaire now.

APPENDIX C

Mindful Attention and Awareness Scale

Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be.

	Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never
1. I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
3. I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
6. I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
7. It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
8. I rush through activities without being really attentive to them.	1	2	3	4	5	6
9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
10. I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
11. I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6
12. I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
13. I find myself preoccupied with the future or the past.	1	2	3	4	5	6
14. I find myself doing things without paying attention.	1	2	3	4	5	6
15. I snack without being aware that I'm eating.	1	2	3	4	5	6

APPENDIX D

Five Facet Mindfulness Questionnaire

Please rate each of the following statements with the number that best describes *your own opinion* of what is *generally true for you*.

	Never or Very Rarely True	Rarely True	Sometimes True	Often True	Very Often or Always True
1. When I'm walking, I deliberately notice the sensations of my body moving.	1	2	3	4	5
2. I'm good at finding words to describe my feelings.	1	2	3	4	5
3. I criticize myself for having irrational or inappropriate emotions.	1	2	3	4	5
4. I perceive my feelings and emotions without having to react to them.	1	2	3	4	5
5. When I do things, my mind wanders off and I'm easily distracted.	1	2	3	4	5
6. When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
7. I can easily put my beliefs, opinions, and expectations into words.	1	2	3	4	5
8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
9. I watch my feelings without getting lost in them.	1	2	3	4	5
10. I tell myself I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
12. It's hard for me to find the words to describe what I'm thinking.	1	2	3	4	5
13. I am easily distracted.	1	2	3	4	5
14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4	5
15. I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
16. I have trouble thinking of the right words to express how I feel about things	1	2	3	4	5
17. I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
18. I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5

19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5
21. In difficult situations, I can pause without immediately reacting.	1	2	3	4	5
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	1	2	3	4	5
23. It seems I am "running on automatic" without much awareness of what I'm doing.	1	2	3	4	5
24. When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
25. I tell myself that I shouldn't be thinking the way I'm thinking.	1	2	3	4	5
26. I notice the smells and aromas of things.	1	2	3	4	5
27. Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
28. I rush through activities without being really attentive to them.	1	2	3	4	5
29. When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4	5
30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	1	2	3	4	5
32. My natural tendency is to put my experiences into words.	1	2	3	4	5
33. When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5
34. I do jobs or tasks automatically without being aware of what I'm doing.	1	2	3	4	5
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	1	2	3	4	5
36. I pay attention to how my emotions affect my thoughts and behavior.	1	2	3	4	5
37. I can usually describe how I feel at the moment in considerable detail.	1	2	3	4	5
38. I find myself doing things without paying attention.	1	2	3	4	5
39. I disapprove of myself when I have irrational ideas.	1	2	3	4	5

APPENDIX E

Temporal Satisfaction With Life Scale

Below are statements with which you may agree or disagree. These statements concern your past, present, or future. Using the scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be honest in your responding.

	Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neither Disagree nor Agree**	**Slightly Agree**	**Agree**	**Strongly Agree**
1. There was nothing that I wanted to change about my past.	1	2	3	4	5	6	7
2. I was satisfied with my life in the past.	1	2	3	4	5	6	7
3. My life in the past was ideal for me	1	2	3	4	5	6	7
4. The conditions of my life in the past were excellent.	1	2	3	4	5	6	7
5. I had the important things I wanted in my past.	1	2	3	4	5	6	7
6. I would change nothing about my current life.	1	2	3	4	5	6	7
7. I am satisfied with my current life.	1	2	3	4	5	6	7
8. My current life is ideal for me	1	2	3	4	5	6	7
9. The current conditions of my life are excellent.	1	2	3	4	5	6	7
10. I have the important things I want right now.	1	2	3	4	5	6	7
11. There will be nothing that I will want to change about my future.	1	2	3	4	5	6	7
12. I will be satisfied with my life in the future.	1	2	3	4	5	6	7
13. I expect my future life will be ideal for me.	1	2	3	4	5	6	7
14. The conditions of my future life will be excellent.	1	2	3	4	5	6	7
15. I will have the important things I want in the future.	1	2	3	4	5	6	7

APPENDIX F

Life Satisfaction Ladders

We would like to learn about how satisfying your life is, as well as how satisfying it was in the past, and how satisfying you think it will be in the future. For each of the three ladders shown below, the box on the top rung is the best possible life (very satisfying) you could imagine; the box on the bottom rung is the worst possible life (very dissatisfying) you could imagine. The boxes on the other rungs are in between. Please indicate, in the following order:

1. How satisfied you are with <u>your present life</u>.
→ Please put an "X" on one of the ladder rungs in the middle column.

2. How satisfied you were with <u>your life in the past</u>.
→ Please put an "X" on one of the ladder rungs in the column on the left.

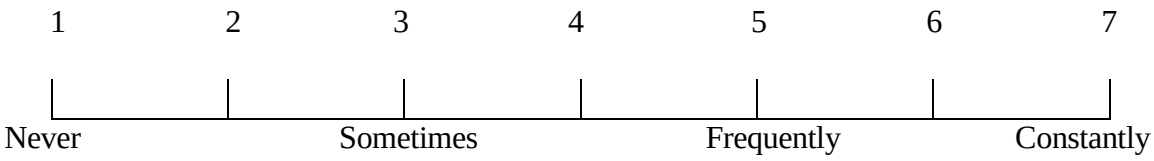
3. How satisfied you <u>expect to be with your life in the future</u>.
→ Please put an "X" on one of the ladder rungs in the column on the right.

STEP 2	**STEP 1 (*START HERE*)**	**STEP 3**
Your life <u>in the past</u>	**Your life <u>right now</u>**	**Your life <u>in the future</u>**
BEST LIFE POSSIBLE (VERY SATISFYING)	BEST LIFE POSSIBLE (VERY SATISFYING)	BEST LIFE POSSIBLE (VERY SATISFYING)
□10	□10	□10
□9	□9	□9
□8	□8	□8
□7	□7	□7
□6	□6	□6
□5	□5	□5
□4	□4	□4
□3	□3	□3
□2	□2	□2
□1	□1	□1
□0	□0	□0
WORST LIFE POSSIBLE (VERY DISSATISFYING)	WORST LIFE POSSIBLE (VERY DISSATISFYING	WORST LIFE POSSIBLE (VERY DISSATISFYING)

APPENDIX G

Temporal Focus

Please read each statement below. Please indicate how often you find yourself thinking this way; in other words, how much each statement generally reflects your thoughts. There are no right or wrong answers. Please use the scale below as a reference for your responses.



1. _____ I think about things from my past.

2. _____ I live my life in the present.

3. _____ I think about what my future has in store.

4. _____ I focus on what is currently happening in my life.

5. _____ I focus on my future.

6. _____ I replay memories of the past in my mind.

7. _____ I imagine what tomorrow will bring for me.

8. _____ My mind is on the here and now.

9. _____ I reflect on what has happened in my life.

10. _____ I think about where I am today.

11. _____ I think back to my earlier days.

12. _____ I think about times to come.

APPENDIX H

Temporal Distance-Past

The previous pages asked you to think about your past life.

How far away was the past that you imagined? Please pick **ONE** statement below and fill in the appropriate number:

The past I imagined was generally _____ days from now.

OR

The past I imagined was generally _____ months from now.

OR

The past I imagined was generally _____ years from now.

The past can sometimes feel close or far away. Thinking about your past life as you imagined it, please indicate how close or far away it feels to you. Please complete both ratings.

1 Feels very close	2	3	4	5	6	7	8	9 Feels very far away

1 Feels like now	2	3	4	5	6	7	8	9 Feels very distant

Temporal Distance-Future

The previous pages also asked you to think about your future life.

How far away was the future that you imagined? Please pick **ONE** statement below and fill in the appropriate number:

The future I described was generally _____ days from now.

OR

The future I described was generally _____ months from now.

OR

The future I described was generally _____ years from now.

The future can sometimes feel close or far away. Thinking about your future life as you imagined it, please indicate how close or far away it feels to you. Please complete both ratings.

1 Feels very close	2	3	4	5	6	7	8	9 Feels very far away

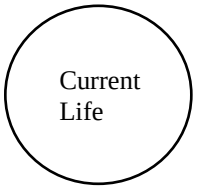
1 Feels like now	2	3	4	5	6	7	8	9 Feels very distant

APPENDIX I

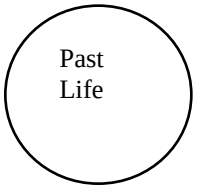
Temporal Overlap- Past/Current

The previous pages also asked you to think about your past life and your current life.

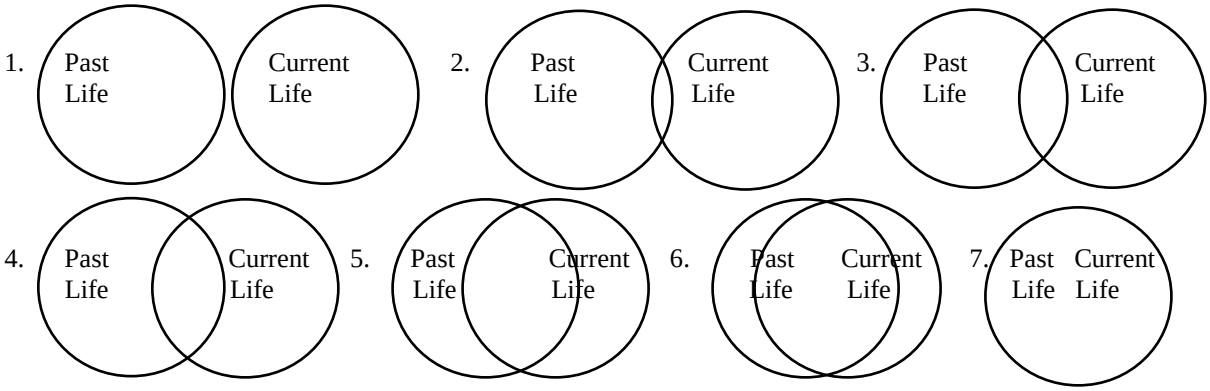
The figures below represent 'your life' as a circle. Think of the circle below as representing everything that you personally feel is part of your Current Life that you were thinking of when rating your current life on the previous pages.



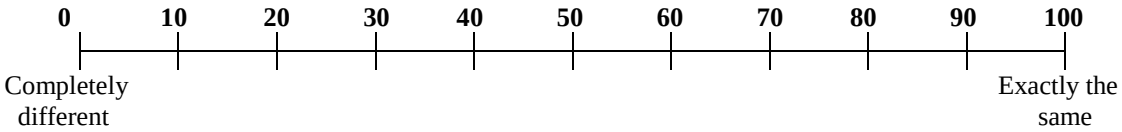
Next, think of the circle below as representing everything about your Past Life that you were thinking of when rating your past life on the previous pages.



How much overlap is there between your current life and your past life?



Below, please rate how similar your life in the past was, compared to your life now.



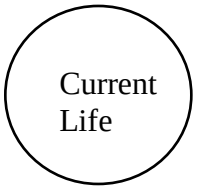
To ensure you are paying attention, please select disagree below.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

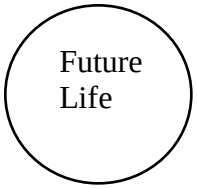
Temporal Overlap- Current/Future

The previous pages also asked you to think about your current life and your future life.

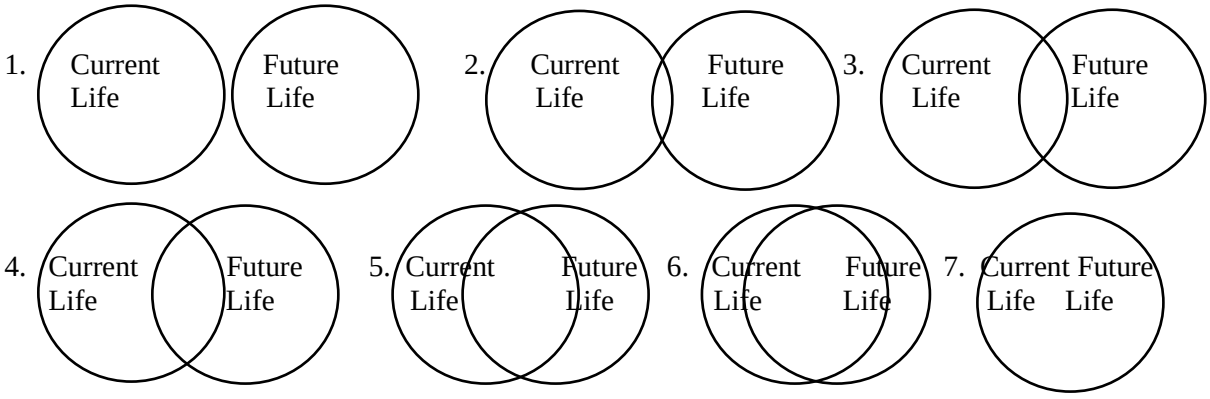
The figures below represent 'your life' as a circle. Think of the circle below as representing everything that you personally feel is part of Your Current Life that you were thinking of when rating your current life on the previous pages.



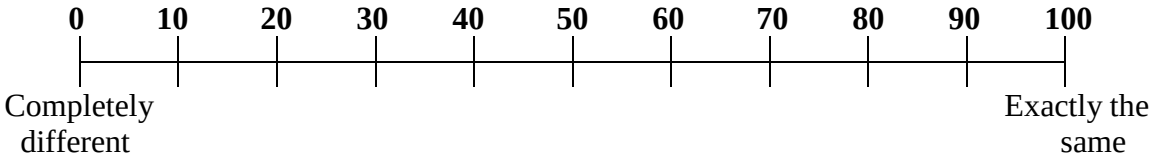
Next, think of the circle below as representing everything about your Future Life that you were thinking of when rating your future life on the previous pages.



How much overlap is there between your current life and your future life?



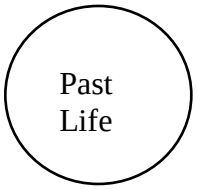
Below, please rate how similar your life in the future will be, compared to your life now.



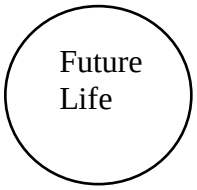
Temporal Overlap- Past/Future

The previous pages also asked you to think about your past life and your future life.

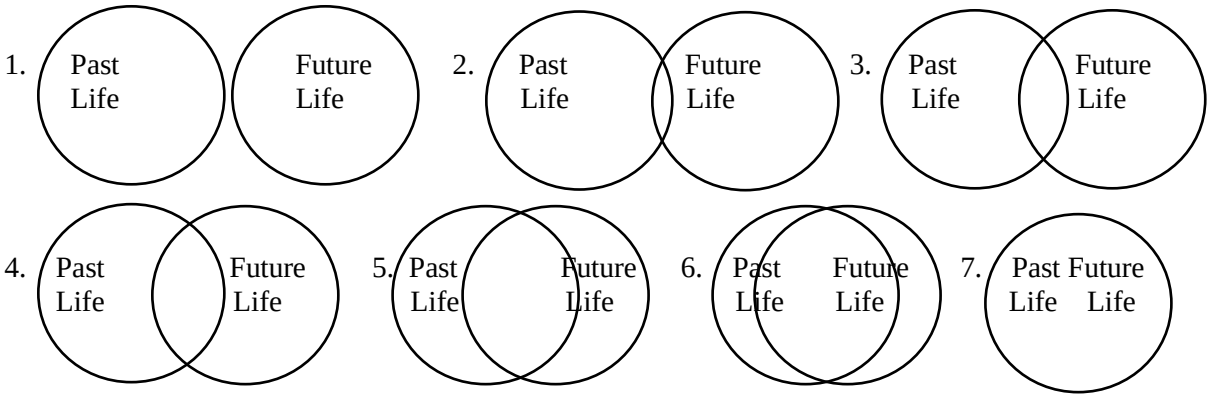
The figures below represent 'your life' as a circle. Think of the circle below as representing everything that you personally feel is part of Your Past Life that you were thinking of when rating your past life on the previous pages.



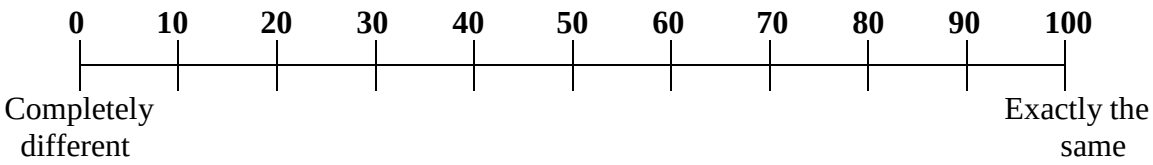
Next, think of the circle below as representing your Future Life that you were thinking of when rating your future life on the previous pages.



How much overlap is there between your current life and your past life?



Below, please rate how similar your life in the future will be, compared to your life in the past.



APPENDIX J

Temporal Valuation Questionnaire- Past

Thinking about your past life:

	Not at all	Slightly	Somewhat	Moderately	Quite	Very	Extremely
1. How important is your past life to you?	1	2	3	4	5	6	7
2. How valuable is your past life to you?	1	2	3	4	5	6	7
3. How significant is your past life to you?	1	2	3	4	5	6	7

Think about your life as it was in the past. How much would you be willing to pay to jump back in time and relive your life (now) as it was in the past? (Please provide a numeric dollar value, without the $ sign).

$_____

Temporal Valuation Questionnaire- Current

Thinking about your current life:

	Not at all	Slightly	Somewhat	Moderately	Quite	Very	Extremely
4. How important is your current life to you?	1	2	3	4	5	6	7
5. How valuable is your current life to you?	1	2	3	4	5	6	7
6. How significant is your current life to you?	1	2	3	4	5	6	7

Think about your life as it is now. How much would you be willing to pay to continue living your life (now) as it is now? (Please provide a numeric dollar value, without the $ sign).

$_____

Temporal Valuation Questionnaire- Future

Thinking about your future life:

	Not at all	Slightly	Somewhat	Moderately	Quite	Very	Extremely
7. How important is your future life to you?	1	2	3	4	5	6	7
8. How valuable is your future life to you?	1	2	3	4	5	6	7
9. How significant is your future life to you?	1	2	3	4	5	6	7

Think about your life as it will be in the future. How much would you be willing to pay to jump forward in time and live your life (now) as it will be in the future? (Please provide a numeric dollar value, without the $ sign).

$_____

APPENDIX K

Anchored-LS Ladders

We would like to learn about how satisfying your life is, as well as how satisfying it was 5 years in the past, and how satisfying you think it will be 5 years in the future. For each of the three ladders shown below, the box on the top rung is the best possible life (very satisfying) you could imagine; the box on the bottom rung is the worst possible life (very dissatisfying) you could imagine. The boxes on the other rungs are in between. Please indicate, in the following order:

1. How satisfied you are with <u>your present life</u>.
→ Please put an "X" on one of the ladder rungs in the middle column.

2. How satisfied you were with <u>your life 5 years ago in the past</u>.
→ Please put an "X" on one of the ladder rungs in the column on the left.

3. How satisfied you <u>expect to be with your life 5 years in the future</u>.
→ Please put an "X" on one of the ladder rungs in the column on the right.

STEP 2	**STEP 1 (*START HERE*)**	**STEP 3**
Your life <u>5 years ago</u>	**Your life <u>right now</u>**	**Your life <u>in 5 years</u>**
BEST LIFE POSSIBLE (VERY SATISFYING)	BEST LIFE POSSIBLE (VERY SATISFYING)	BEST LIFE POSSIBLE (VERY SATISFYING)
□10	□10	□10
□9	□9	□9
□8	□8	□8
□7	□7	□7
□6	□6	□6
□5	□5	□5
□4	□4	□4
□3	□3	□3
□2	□2	□2
□1	□1	□1
□0	□0	□0
WORST LIFE POSSIBLE (VERY DISSATISFYING)	WORST LIFE POSSIBLE (VERY DISSATISFYING)	WORST LIFE POSSIBLE (VERY DISSATISFYING)

APPENDIX L

The Rumination-Reflection Questionnaire-Rumination Subscale

For each of the following statements, please rate your level of agreement.

		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1.	My attention is often focused on aspects of myself I wish I'd stop thinking about	1	2	3	4	5
2.	I always seem to be rehashing in my mind recent things I've said or done.	1	2	3	4	5
3.	Sometimes it is hard for me to shut off thoughts about myself.	1	2	3	4	5
4.	Long after an argument or disagreement is over with, my thoughts keep going back to what happened	1	2	3	4	5
5.	I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.	1	2	3	4	5
6.	To check you are paying attention please select agree to this question	1	2	3	4	5
7.	I don't waste time rethinking things that are over and done with.	1	2	3	4	5
8.	Often I'm playing back over in my mind how I acted in a past situation.	1	2	3	4	5
9.	I often find myself re-evaluating something I've don	1	2	3	4	5
10.	I never ruminate or dwell on myself for very long.	1	2	3	4	5
11.	It is easy for me to put unwanted thoughts out of my mind.	1	2	3	4	5
12.	I often reflect on episodes in my life that I should no longer concern myself with.	1	2	3	4	5
13.	I spend a great deal of time thinking back over my embarrassing or disappointing moments.	1	2	3	4	5

APPENDIX M

Difficulties in Emotion Regulation Scale

Please indicate how often the following statements apply to you.

	Almost Never (0-10%)	Sometimes (11-35%)	Almost half the time (36-65%)	Most of the time (66-90%)	Almost Always (90-100%)
1. I am clear about my feelings.	1	2	3	4	5
2. I pay attention to how I feel.	1	2	3	4	5
3. I experience my emotions as overwhelming and out of control.	1	2	3	4	5
4. I have no idea how I am feeling.	1	2	3	4	5
5. I have difficulty making sense out of my feelings.	1	2	3	4	5
6. I am attentive to my feelings.	1	2	3	4	5
7. I know exactly how I am feeling.	1	2	3	4	5
8. I care about what I am feeling.	1	2	3	4	5
9. I am confused about how I feel.	1	2	3	4	5
10. When I'm upset, I acknowledge my emotions.	1	2	3	4	5
11. When I'm upset, I become angry with myself for feeling that way.	1	2	3	4	5
12. When I'm upset, I become embarrassed for feeling that way.	1	2	3	4	5
13. When I'm upset, I have difficulty getting work done.	1	2	3	4	5
14. When I'm upset, I become out of control.	1	2	3	4	5
15. When I'm upset, I believe that I will remain that way for a long time.	1	2	3	4	5
16. When I'm upset, I believe that I will end up feeling very depressed.	1	2	3	4	5
17. When I'm upset, I believe that my feelings are valid and important.	1	2	3	4	5
18. When I'm upset, I have difficulty focusing on other things.	1	2	3	4	5
19. When I'm upset, I feel out of control.	1	2	3	4	5
20. When I'm upset, I can still get things done.	1	2	3	4	5
21. When I'm upset, I feel ashamed at myself for feeling that way.	1	2	3	4	5

22. When I'm upset, I know that I can find a way to eventually feel better.	1	2	3	4	5
23. When I'm upset, I feel like I am weak.	1	2	3	4	5
24. When I'm upset, I feel like I can remain in control of my behaviors.	1	2	3	4	5
25. When I'm upset, I feel guilty for feeling that way.	1	2	3	4	5
26. When I'm upset, I have difficulty concentrating.	1	2	3	4	5
27. When I'm upset, I have difficulty controlling my behaviors.	1	2	3	4	5
28. When I'm upset, I believe there is nothing I can do to make myself feel better.	1	2	3	4	5
29. When I'm upset, I become irritated at myself for feeling that way.	1	2	3	4	5
30. When I'm upset, I start to feel very bad about myself.	1	2	3	4	5
31. When I'm upset, I believe that wallowing in it is all I can do.	1	2	3	4	5
32. When I'm upset, I lose control over my behavior.	1	2	3	4	5
33. When I'm upset, I have difficulty thinking about anything else.	1	2	3	4	5
34. When I'm upset, I take time to figure out what I'm really feeling.	1	2	3	4	5
35. When I'm upset, it takes me a long time to feel better.	1	2	3	4	5
36. When I'm upset, my emotions feel overwhelming.	1	2	3	4	5

APPENDIX N

Demographics

Please state your age: _____ .

Please select your sex by checking one of the options:

( ) Male

( ) Female

( ) Transgender

( )Other (please specify): _____

Please indicate your race from the following:

____ White

____ Black

____ Latino

____ Asian

____ Indian

____ Middle Eastern

____Other (please specify):_____

Please indicate your education level:

____ Did not finish high school

____ High school

____ College/University Degree

____ Professional Degree

____ Graduate Degree

How often do you usually mediate?

Never	Once a year	2-3 times a year	Monthly	2-3 times a month	Weekly	2-3 times a week	Daily

APPENDIX O

Debriefing & Feedback Form

Date: March 2016-June 2016
Project Title: Beliefs about Life (Past, Present, Future) Questionnaire

Principal Investigator:
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Research Feedback

Dear Participant,

Thank you very much for participating in this study. The main goal of this study was to investigate the links between mindfulness, temporal perspective, and how individuals view their life satisfaction to be unfolding over time (which we call "subjective life satisfaction trajectories").

Research shows that when young adults rate their recollected past, current, and anticipated future life satisfaction, they typically produce an inclining subjective trajectory (past < current < future life satisfaction). That is, young adults tend to believe that life gets better and better over time. Although this belief is widespread, particularly among young adults, research shows that actual levels of life satisfaction tend to stay quite stable over long periods of time (e.g., over several years). Also, although it may be seem to be a positive sign, holding strong beliefs that life gets better and better has been associated with greater psychological distress and lower levels of wellbeing. In contrast, individuals who view their life satisfaction as more stable over time seem to have more successful life outcomes. Thus, it is important to examine the source of these beliefs.

Mindfulness is a present-focused awareness of one's moment-to-moment experiences. Research has shown that higher mindfulness is linked with lower levels of stress, stronger social bonds, and greater feelings of happiness and meaning in one's life. One of the goals of the current study is to investigate the link between mindfulness and subjective trajectories of life satisfaction. For example, we will examine whether mindful individuals view their lives as changing (e.g., getting better and better) over time, or instead view their lives as stable,

Further, both mindfulness and subjective trajectories for life satisfaction share an emphasis on temporal perspective – that is, how people think about their lives through subjective time (e.g., my past, my present, my future). As such, the second goal of the current study is to investigate temporal perspective in relation to mindfulness and individuals' views concerning how their lives are changing over time. To measure temporal perspective, you were asked to complete questions concerning temporal focus (the degree to which you focus on your past, present, and future), temporal distance (how near or far you view your past and future lives),temporal overlap (how similar or different you view your past and future vs. current life), and temporal valuation (the degree to which you value your past, current, and future life). We expect that mindfulness may be linked with subjective life satisfaction trajectories because of how individuals think about their past, current, and future lives (in terms of focus, distance, and overlap).

In general, we expect that more mindful individuals will not view their lives as getting better and better, but rather as stable. Further, we expect that individual differences in temporal focus, temporal distance, temporal overlap, and temporal valuation will explain why mindfulness is linked with subjective trajectories for life satisfaction. It is possible, for example, that more mindful individuals will view their lives as more stable over time because more mindful individuals will focus more on the present and therefore will not spend time thinking about the possible differences between their present versus past and future lives. It is also possible that more mindful individuals will view their lives as more stable because they view their past life and future life to be closer to the present moment and thus believe there can be little change in life satisfaction in the short distance to the past and/or the future. Further, more mindful individuals may view their lives as more stable because they view a high degree of overlap among their past, present, and future lives, suggesting that their life is relatively similar and stable. Finally, more mindful individuals may view their lives as more stable because they value their present life to a greater degree.

Please note this is an on-going study and we hope to recruit many more participants. Now that we have more fully explained our research to you, we must ask you to please avoid telling anyone else about the details of this study and its purpose. Doing so may alter the results because people might respond differently if they know what we are looking for. This is why we did not tell you everything about this research until after you had completed this study.

If you feel upset by the situation described in this study, please use a search engine such as Google to find a local crisis-counseling service. If you do not have access to crisis counseling or a therapist, please consult your physician for a referral. If you feel you have not been treated according to the descriptions in this form, or that your rights as a participant in research have been violated during the course of this project, you may contact the Research Ethics Officer at Brock University (Canada) at 905-688-5550, extension 3035.

If you have any other questions or concerns about this study, please feel free to contact the researcher (see the contact information at the top of this form). Results from this

study will be available in one year approximately; please contact the researcher at that time if you wish to receive information about the findings. Note that we can only provide group averages and overall results, not personal information because all data will remain anonymous and confidential. If you like, you can print off a copy of this page for your records.

Thank you again for your time and participation!
And please keep the information about the details of our study private –
so that others may have an opportunity to participate in this study too.

Below is your survey code. You must enter this on the MTurk website to receive payment. Copy and paste the code into the text-entry box on the HIT page for this survey.

{confirmation code will be shown here}

APPENDIX P

MIND-WANDERING SCALE

For the following statements, please rate the frequency with which they happen to you.

	Almost Never	Very Infrequently	Somewhat Infrequently	Somewhat frequently	Very Frequently	Almost Always
1. I have difficulty maintaining focus on simple or repetitive work.	1	2	3	4	5	6
2. While reading, I find I haven't been thinking about the text and must therefore read it again.	1	2	3	4	5	6
3. I do things without paying full attention.	1	2	3	4	5	6
4. I find myself listening with one ear, thinking about something else at the same time.	1	2	3	4	5	6
5. I mind-wander during lectures or presentations.	1	2	3	4	5	6

DELIBERATE AND SPONTANEOUS MIND-WANDERING SCALES

For the following statements please select the answer that most accurately reflects your everyday mind wandering.

Deliberate:	**Rarely**	**Very Infrequently**	**Somewhat Infrequently**	**Somewhat frequently**	**Very Frequently**	**Almost Always**	**A Lot**
1. I allow my thoughts to wander on purpose.	1	2	3	4	5	6	7
2. I enjoy mind-wandering.	1	2	3	4	5	6	7
	Not at all True						Very True
3. I find mind-wandering is a good way to cope with boredom.	1	2	3	4	5	6	7
	Rarely						A Lot
4. I allow myself to get absorbed in pleasant fantasy.	1	2	3	4	5	6	7

Spontaneous:	Rarely	Very Infrequently	Somewhat Infrequently	Occasionally	Sometimes	Often	A Lot
1. I find my thoughts in wandering spontaneously.	1	2	3	4	5	6	7
2. When I mind-wander my thoughts tend to be pulled from topic to topic.	1	2	3	4	5	6	7
	Almost Never						Almost Always
3. It feels like I don't have control over when my mind wanders.	1	2	3	4	5	6	7
	Rarely						A Lot
4. I mind wander even when I'm supposed to be doing something else.	1	2	3	4	5	6	7